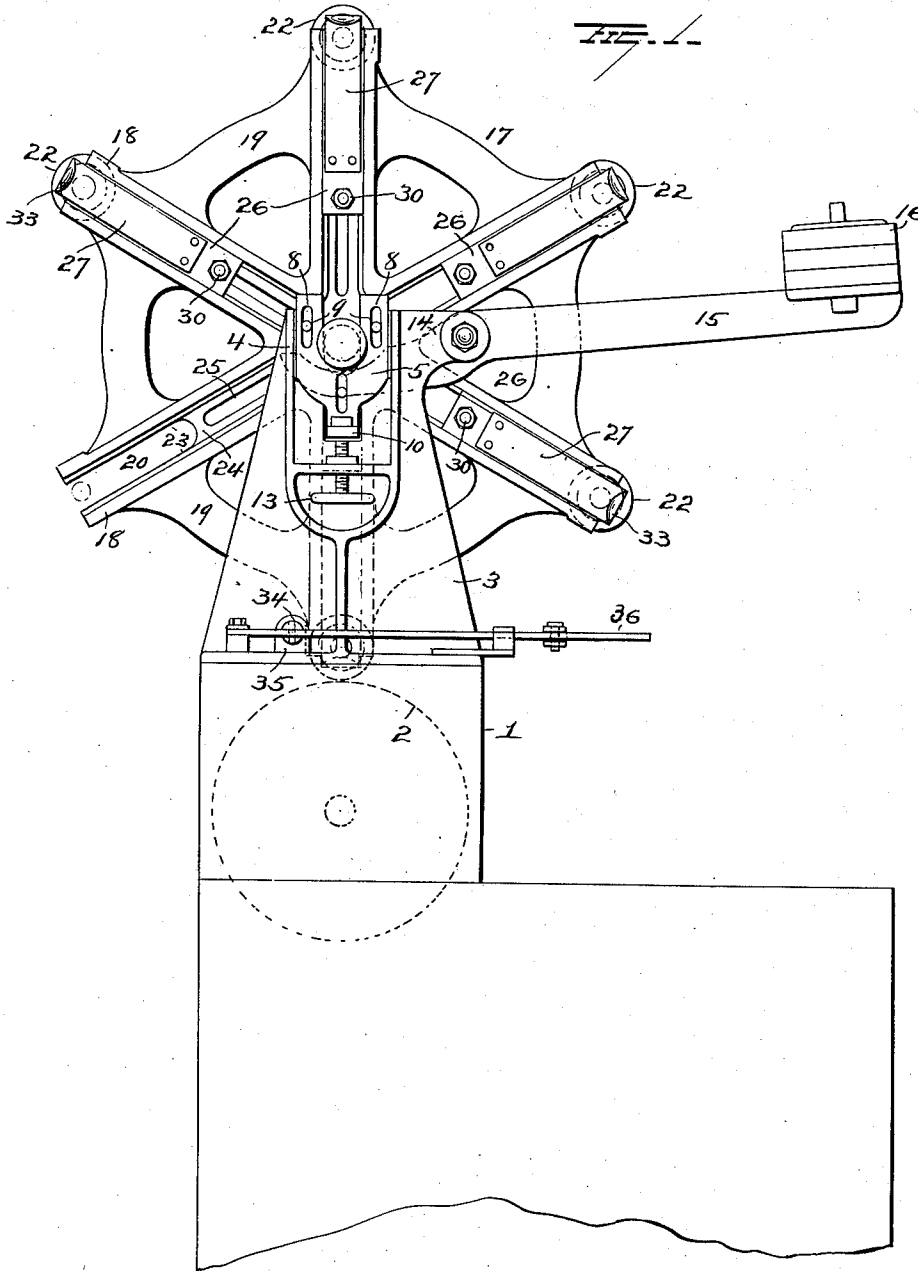


F. E. KEYES.
MACHINE FOR MAKING PAPER TUBES.
APPLICATION FILED MAR. 16, 1910.

986,994.

Patented Mar. 14, 1911.

3 SHEETS—SHEET 1.



WITNESSES
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G. J. Downing

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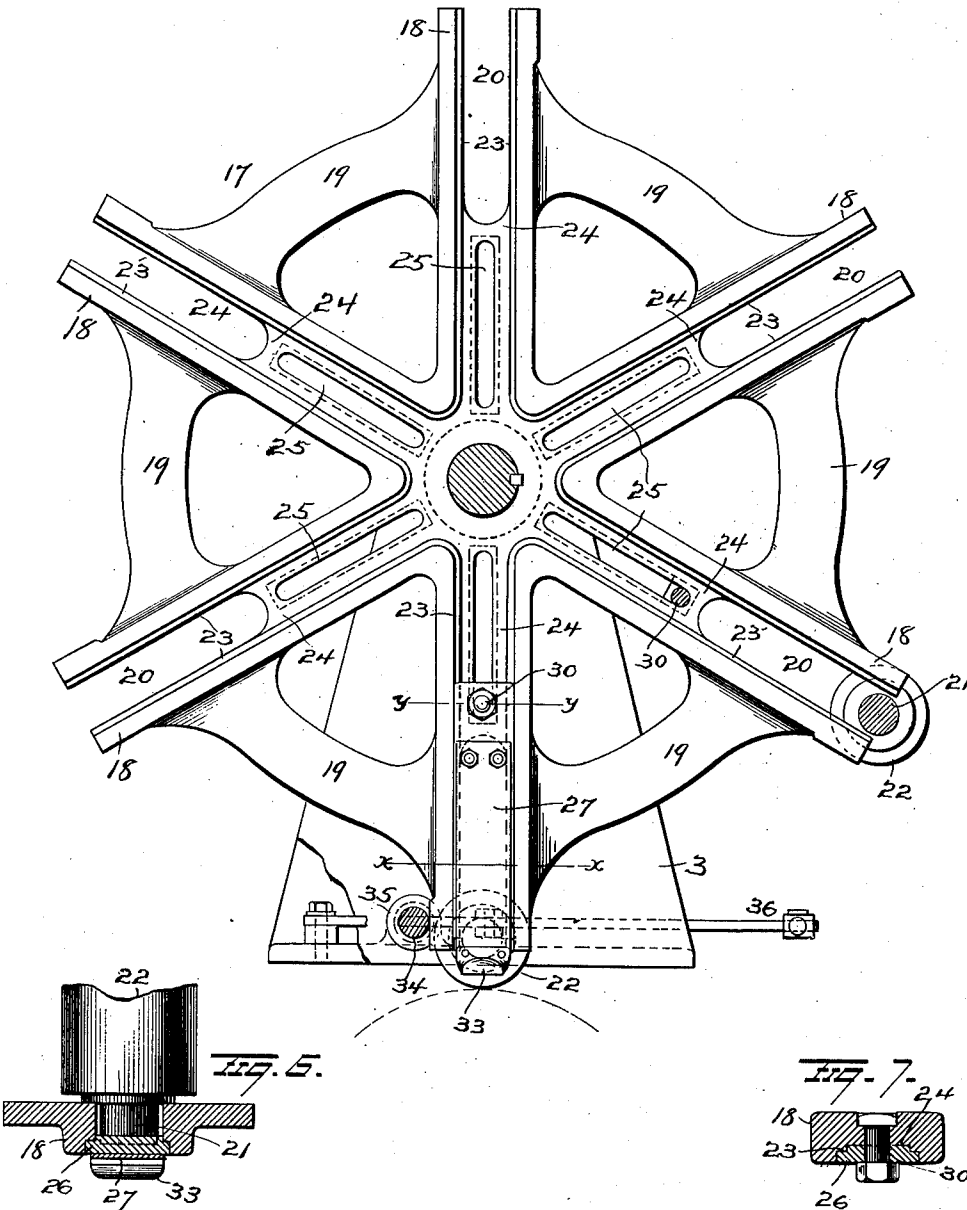
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Fig. 2.



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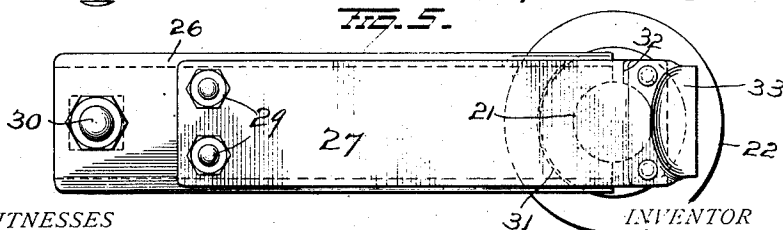
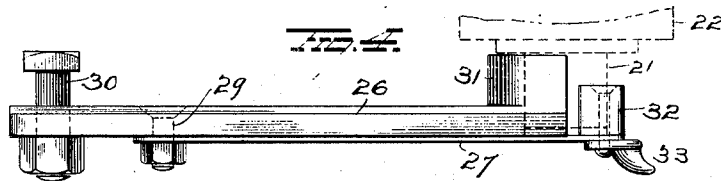
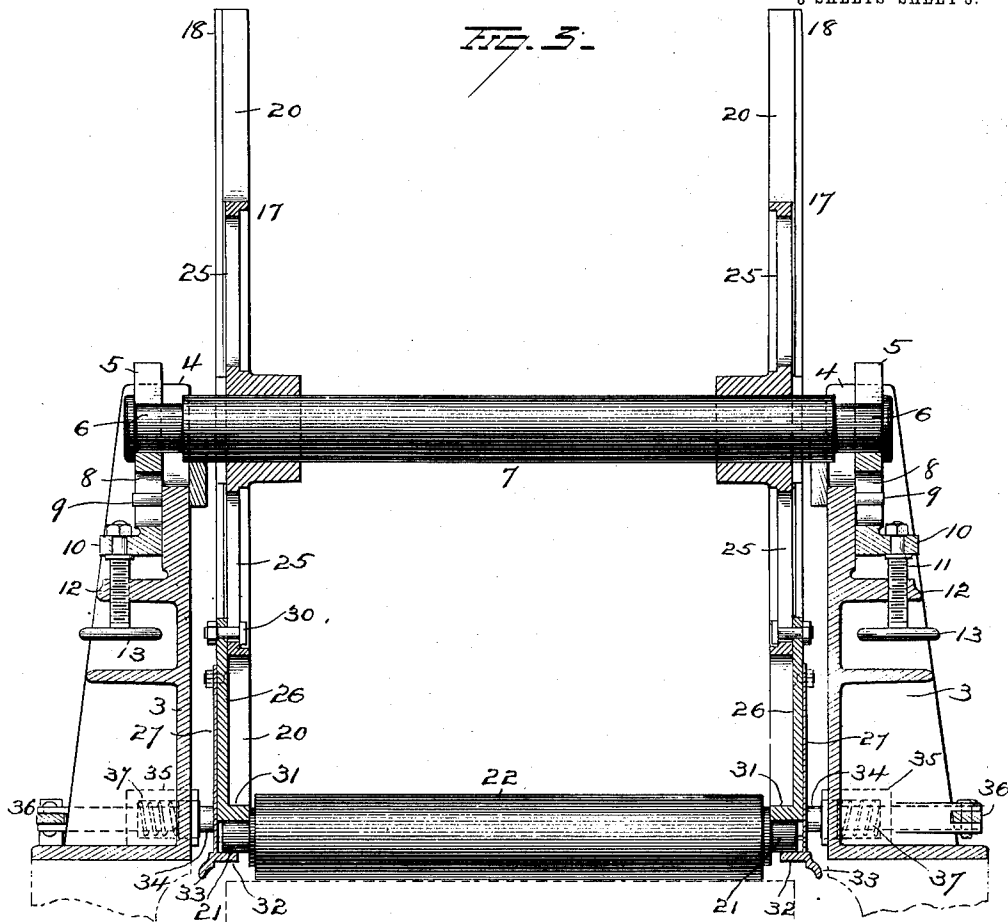
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UNITED STATES PATENT OFFICE.

FRANK E. KEYES, OF NEW YORK, N. Y.

MACHINE FOR MAKING PAPER TUBES.

986,994.

Specification of Letters Patent. Patented Mar. 14, 1911.

Application filed March 16, 1910. Serial No. 549,761.

To all whom it may concern:

Be it known that I, FRANK E. KEYES, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for Making Paper Tubes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in machines for making paper tubes, the object of the invention being to provide simple and efficient means for removably and adjustably supporting the shafts or cores on which the paper forming the tubes is wound.

With this object in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation showing a portion of a tube making machine illustrating the application of my improvements thereto; Fig. 2 is an enlarged face view of one of the spiders which carry the roll or core supporting devices; Fig. 3 is a transverse sectional view showing the arrangement of the spiders on the shaft which carries them; Figs. 4 and 5 are enlarged detail views of the devices which carry the rolls or cores on which the paper is wound, and Figs. 6 and 7 are sectional views on the lines $x-x$ and $y-y$ respectively of Fig. 2.

1 represents a portion of the frame-work of a tube making machine, and 2 the couch roll of said machine, or the mold roll in case no couch roll is used. Standards 3 rise from the top of the frame or casing 1 and are made at their upper ends with integral yokes 4 in which bearing brackets 5 are located for the accommodation of the journals 6 of a shaft 7 which carries the supporting means for the winding rolls or cores on which the paper is wound. Each bearing bracket 5 is provided with a series of elongated slots 8, into which guide pins 9 project. At the lower end of each bracket, a lug 10 is provided and has swiveled thereto, the upper end of a screw 11. Each screw 11 passes through a threaded hole in a flange 12 and at its lower end, each screw is provided with a hand wheel 13. The standards 3 are provided at their upper ends with arms 14, to which levers 15 are pivotally connected be-

tween their ends. The short arms of the levers are made hook-shaped to engage under the shaft 7 and the long arms of said levers are provided with weights 16 which serve to counterbalance the winding rolls or cores and their supporting devices and prevent excessive pressure upon the couch or mold roll or shell 2. To the shaft 7, two spiders 17 are secured, each spider comprising a series of radial arms 18 and connecting or bracing webs 19. Each radial arm 18 is made in its outer portion with an elongated slot 20 for the accommodation of a journal 21 of one of the winding rolls or cores 22. Shoulders 23 are located at respective sides of the slot 20 and extend from end to end of the arm. That portion of each arm 14 in rear of the slot 20 is depressed, as shown at 24 and this depressed portion of each arm is provided with an elongated slot 25. A bar 26 is disposed on each arm 14, and to this bar a spring plate 27 is secured by means of bolts 29, said plate being somewhat less in width than that of the bar. The bar rests on the shoulders 23 and a bolt 30 passes through each bar 26, and also through the elongated slot 25 of one of the arms 18, thus adjustably connecting the bars and their springs to the spider arms. The outer end of each bar 26 is provided with a curved enlargement 31 for the accommodation of a journal 21 of one of the winding rolls or cores 22 and prevents displacement of the latter toward the center of the spider. Each spring 27 is made of sufficient length to extend past the end of journal 21 and has secured to its free end, a curved lug or bearing 32 which receives journal 21 and prevents release of the winding roll. Each lug or bearing 32 is provided with a finger piece 33, by means of which the spring 27 and lug or bearing 32 carried thereby, can be moved outwardly to release the journal 21 and thus permit the removal of the winding roll.

The spiders will have a series of winding rolls mounted therein and these will be so adjusted that one of said winding rolls will be so located as to cooperate with the couch or mold roll 2 to receive paper therefrom, and will be retained in such position, by means of pins 34, against which, one of the arms 18 carrying the active winding roll, abuts. The pins 34 are guided through perforated lugs 35 on framework, and said pins are moved in one direction by levers 36 attached to the framework, to release the wind-

ing roll supporting means,—said pins being moved in the other direction by means of springs 37.

It will be readily seen that by making the bars 26 and springs 27 longitudinally adjustable with respect to the arms of the spiders, the winding rolls can be set for making tubes of different thicknesses.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. In a machine of the character described, the combination with a shaft and arms thereon, of spring plates attached to said arms and constructed at their free ends to form bearings for the journals of winding rolls.

2. In a machine of the character described, the combination with a shaft and radiating arms thereon, of spring plates adjustably mounted on said arms, said spring plates provided at their free ends with bearings for the journals of a winding roll.

3. In a machine of the character described, the combination with a shaft and spiders on said shaft, each of said spiders having a series of radiating arms, of a spring plate secured to each of said arms and provided at its outer end with a bearing for the journal of a winding roll.

4. In a machine of the character described, the combination with a shaft and arm thereon, of a bar adjustable on said arm and having a journal bearing, a spring plate secured to said adjustable bar, a bearing for the journal of a winding roll at the outer end of said spring plate, and a finger piece connected with the bearing on the spring for withdrawing the same to move it relatively to said journal.

5. In a machine of the character described, the combination with a shaft and spider

thereon comprising radial arms, of a bar adjustably secured to each arm, a spring plate secured to each bar, and a bearing at the free end of each spring plate, for a journal of a winding roll.

6. In a machine of the character described, the combination with a shaft, and arms projecting therefrom, each of said arms having open slots for the reception of journal bearings of a winding roll, and each arm also having a closed elongated slot, of a bar mounted on each arm, a bolt passing through each bar and closed elongated slot, a spring plate secured to each bar, and a bearing at the free end of each spring plate, for a journal of a winding roll.

7. In a machine of the character described, the combination with a shaft and two spiders thereon, each having a series of radiating arms, of a bar adjustably mounted on each of said arms, a spring plate secured to each bar, a bearing lug at the free end of each spring plate for the accommodation of a journal of a winding roll, and a finger piece connected with each of said bearing lugs.

8. In a machine of the character described, the combination with weighted levers, and a shaft sustained thereby, of two spiders secured to said shaft, each spider comprising a series of radial arms, spring plates adjustably secured to the arms of the spiders, and retractile means at the free ends of said spring plates for supporting the journals of a series of winding rolls.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

FRANK E. KEYES.

Witnesses:

E. D. DONHAM,
L. W. CLARK.