J. H. RENTON.

COP MAKING APPARATUS.

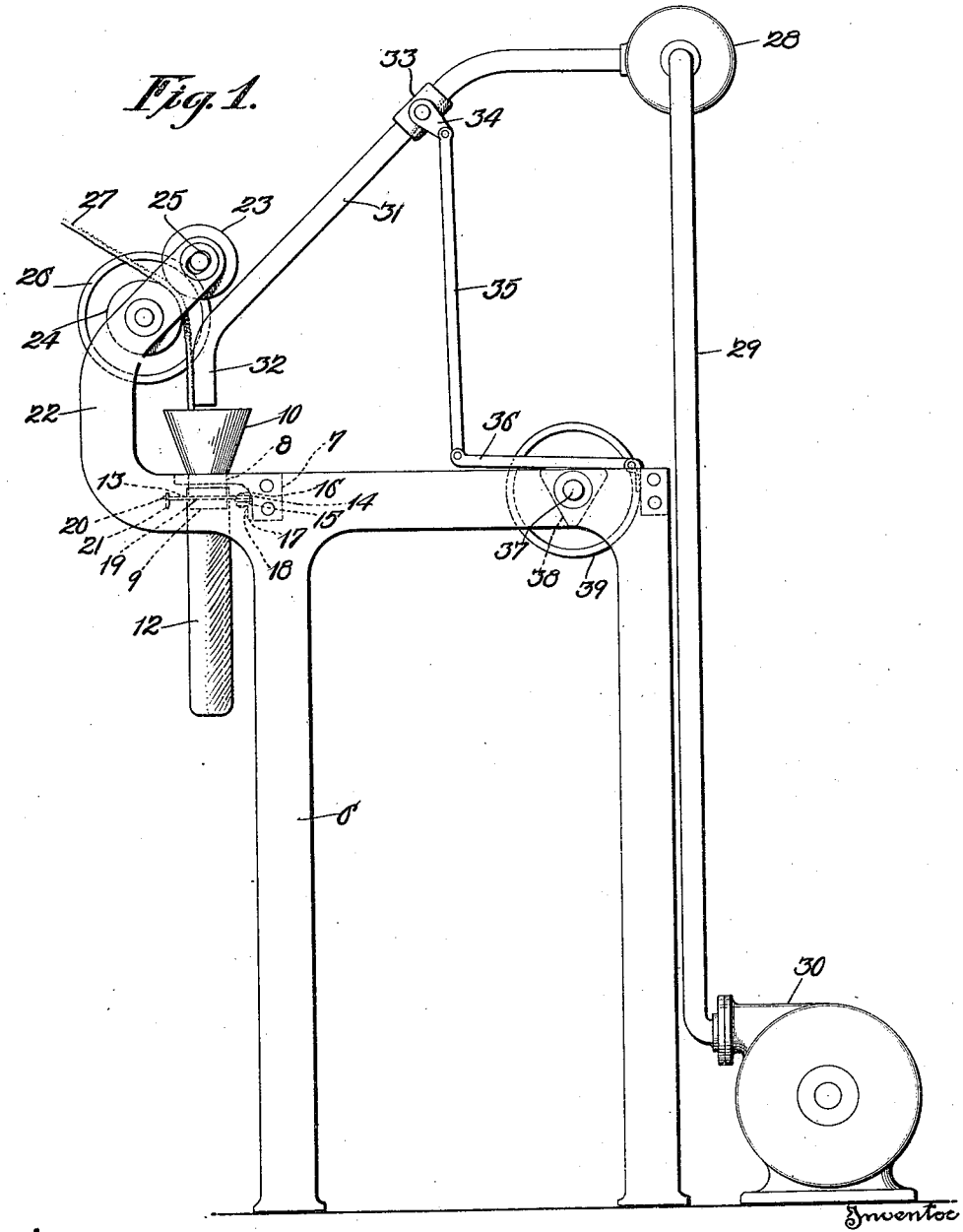
APPLICATION FILED APR. 23, 1919.

1,353,613.

Patented Sept. 21, 1920.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

Horace L. Harwood.

Augustus B. Loppes.

Inventor

James H. Renton.

By Joshua R. H. Potts

His Attorney

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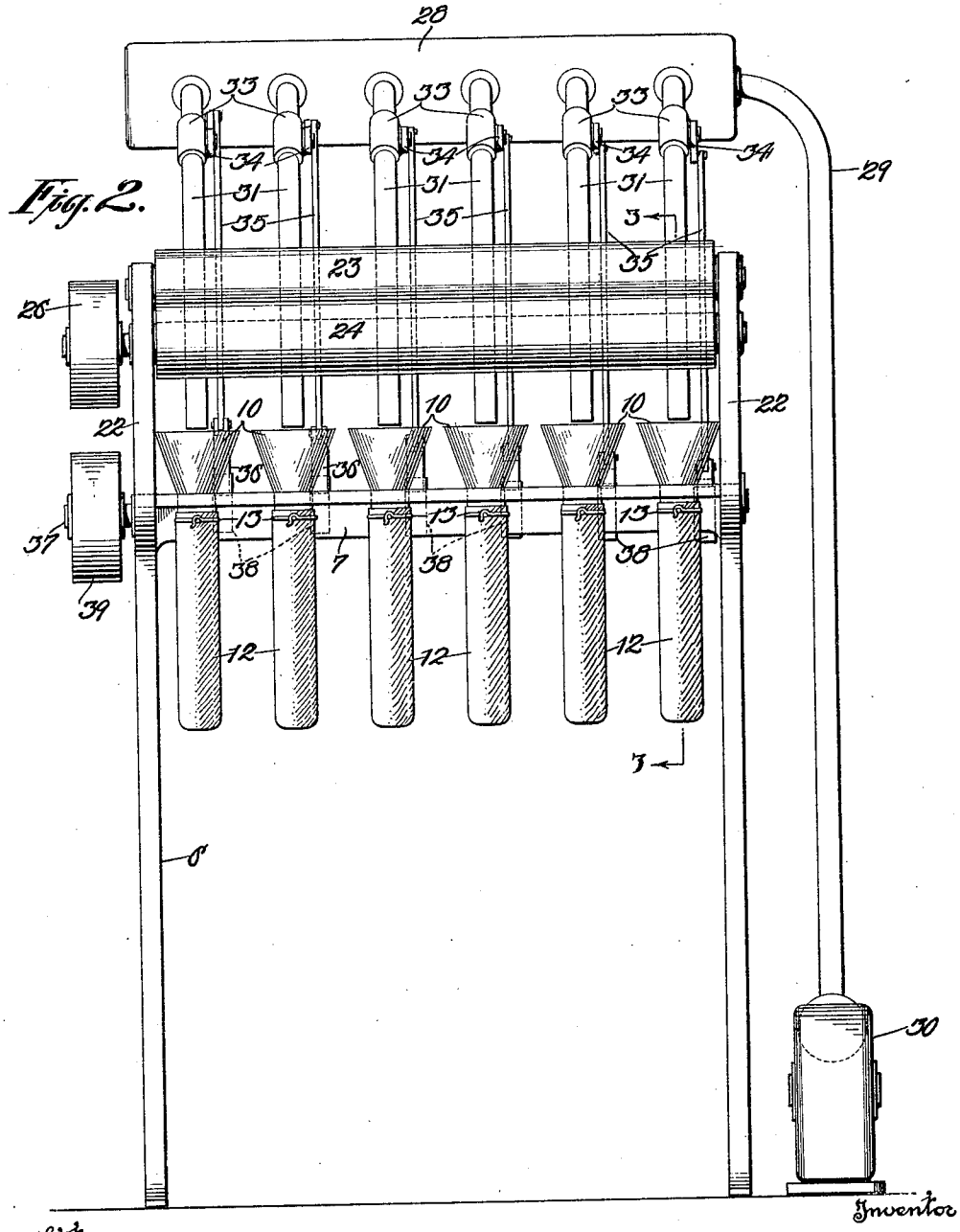
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

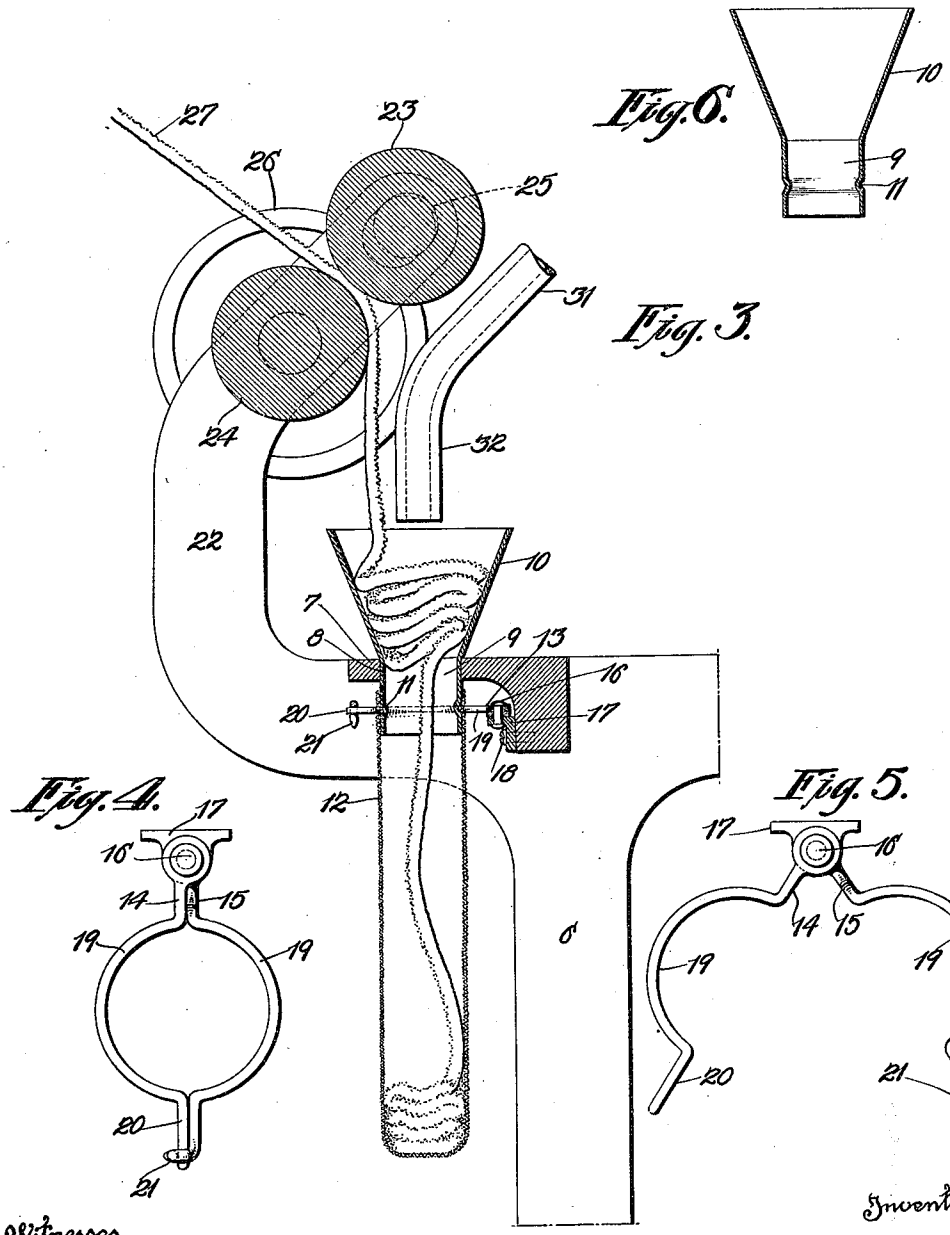


Fig. 6.

Fig. 3.

Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

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COP-MAKING APPARATUS.

1,353,613. Specification of Letters Patent. Patented Sept. 21, 1920.

Application filed April 23, 1919. Serial No. 292,125.

To all whom it may concern:

Be it known that I, JAMES H. RENTON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Cop-Making Apparatus, of which the following is a specification.

One object of my invention is to provide improved apparatus for making cops of yarn, and particularly chenille yarn, so that the cops can be conveniently used in shuttles for weaving or other purposes.

In view of the characteristics of chenille yarn the latter cannot be wound with good results upon bobbins for the reason that the twisting of the yarn necessary to wind a bobbin would partly remain in the chenille yarn and thereby prevent it from standing up in straight rows when "beat up" by the lay of a loom.

Another object of my invention is to so arrange the chenille yarn that it can be used for weaving or other purposes with far better results than possible prior to my invention.

A further object is that the above mentioned arrangement of the yarn can be carried out quickly and with comparatively few mechanical elements.

A still further object is to make my invention of a simple and durable construction.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a side elevation of apparatus made in accordance with my invention,

Fig. 2 is a front view of Fig. 1,

Fig. 3 is an enlarged fragmentary section taken on the line 3—3 of Fig. 2,

Fig. 4 is a fragmentary view of a bag clamp which forms a part of my invention and showing the same in a closed or clamping position,

Fig. 5 is a plan view of the bag clamp shown in Fig. 4 illustrating the same in an opened position, and

Fig. 6 is a section of one of a number of funnels which forms a part of my invention.

Referring to the drawings, 6 represents a frame having a longitudinally extending rail rack 7. This rack 7 has a row of holes 8 extending therethrough from the top to the bottom and adapted to receive the hollow stems 9 of funnels 10. The funnels 10 have annular grooves 11 adjacent their bottoms and said stems 9 serve to form a support or suspending means for bags 12, said bags being preferably made of porous material, such for example as open mesh fabric in which the spaces or interstices between the threads of the fabrics provide outlet passages for air as will be hereinafter more fully described. The upper ends of the bags 12 are adapted to be freely slipped over the outer surfaces of the stems 9, and bag clamps 13 are supported upon the rail rack 7 and are adapted to clamp the bags to the respective stems 9. This is accomplished in the following manner: Each bag clamp 13 has two parts 14 and 15 which are pivotally connected at 16 to a bracket 17. The bracket 17 is attached in any suitable manner, such for example as by the screws 18 to the rail rack 7. Each of the parts 14 and 15 of the bag clamp has a bowed portion 19 and these bowed portions are adapted to register with each other to provide a ring. The bag clamps are in such position that when the parts 14 and 15 are moved together, such for example as shown in Figs. 2, 3 and 4, the parts 19 will force a respective bag 12 within the groove 11 of the funnel stem 9. The part 14 of each of the bag clamps has an extension 20 which is adapted to be engaged by a hook 21 on the adjacent part 15 so that said hook and extension will hold the portions 19 within the groove 11 and thereby securely clamp the bag 12 to the funnel stem 9. The extension 20 and hook 21 of each bag clamp are so arranged that they can be readily detached by the fingers so that the parts can be moved into an open position, such as shown in Fig. 5, to remove the bag from the funnel stem. Furthermore, to close the bag clamp it is merely necessary to slightly raise the hook 21 over the extension and the parts will be locked, as above described.

The frame 6 includes arms 22 which form supports for feed rolls 23 and 24. The upper feed roll 23 has its ends mounted within slots 25 in the arms 22 so that the upper roller normally tends to move by gravity toward the roll 24. The roll 24 is rotated by means of a pulley 26 and yarn 27 is fed

between the rolls 23 and 24 into the upper flared ends of the funnels 10, as clearly shown in Figs. 1 and 3.

A compressed air reservoir 28 is mounted above the frame 6 and is connected by a pipe 29 to an air pump 30. The reservoir 28 is connected by a number of tubes 31, said tubes leading forwardly and having end portions 32 arranged in axial alinement with the funnels 10 and respective bags 12. It will thus be seen that air from the reservoir 28 can pass through the tubes 31 and be blown into the funnels 10 and bags 12. Each of the tubes 31 has a valve 33 which, when moved in one direction, serves to cut off the air from the reservoir and when moved in an opposite direction serves to permit air to pass from the reservoir through the tube in which the valve is placed. Each of the valves 33 is connected on the outside by an arm 34, said arms being connected by links 35 to levers 36. The frame 6 forms a support for a shaft 37 having cams 38 thereon adapted to respectively raise the levers 26 periodically to open the valves 33. The shaft 37 has a pulley 39 which can be rotated from any convenient source of power. The cams 38 are preferably set so that their valves will be successively operated to permit puffs of compressed air to enter the respective funnels and bags. As shown in Fig. 3, the yarn 27 is fed into the funnels and the puffs of compressed air serve to force the yarn in a compact arrangement within the bags 12. By this means, the bags 12 are filled with folds or convolutions of the yarn and when the bags have been filled they can be released from the funnels by opening the bag clamps 13, as above described. By my above described apparatus, the yarn 27 will be packed within the bags without employing any instruments or tools and therefore when chenille is used the chenille will not be injured and the fibers will not be disturbed. By making the bags 12 porous, the air is prevented from becoming congested and therefore the yarn will be firmly packed so that the bags will contain a comparatively great amount of the yarn.

While I have described the apparatus of my invention for the use in filling bags with yarn and thereby forming cops of the yarn, it will be understood that my invention can be used for various purposes where it is possible to use a compressed air bag filling machine.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

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

1. Apparatus of the character described including a structure for supporting a plurality of bags with their open ends at the top; air conducting means having openings positioned to direct air downwardly into the open ends of said bags and being spaced from said bags to permit yarn to be inserted into the tops of the bags and blown therein by the air; and means for feeding yarn into said bags through said space; substantially as described.

2. Apparatus of the character described including a supporting structure whereby bags can be hung thereon with their open ends at the top; means for feeding yarn downwardly into the bags whereby the yarn will enter the bags and arrange itself in a series of folds or convolutions; and means for intermittently delivering air downwardly into said bags so as to pack said folds or convolutions of the yarn within the bags; substantially as described.

3. Apparatus of the character described including a supporting structure whereby bags can be hung thereon with their open ends at the top; means for feeding yarn downwardly into the bags; and air tubes having end portions spaced from said bags to permit the yarn to pass into the bags whereby air from said ends of the tubes will be delivered into the bags to pack folds or convolutions of the yarn within the bags; substantially as described.

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

JAMES H. RENTON.

Witnesses:
EDGAR A. HOBSON,
RICHARD POLLOCK.