

No. 628,665.

Patented July 11, 1899.

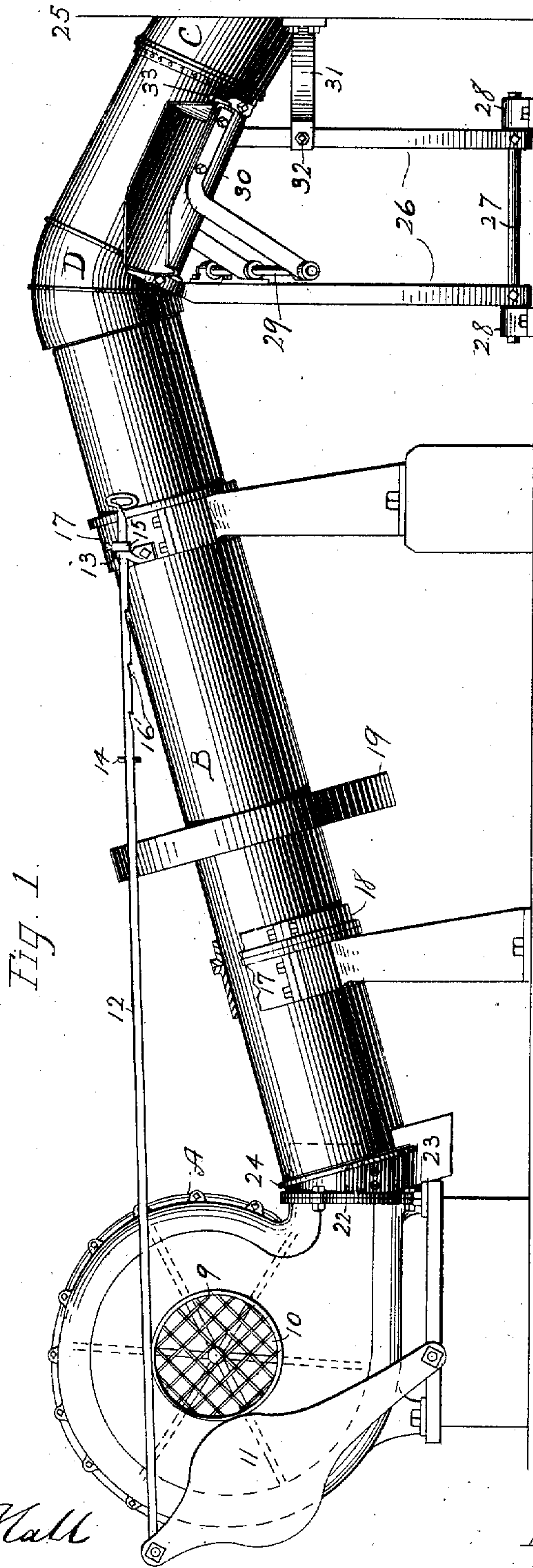
H. K. JONES.

MACHINE FOR SEPARATING CHIPS OR SHAVINGS FROM SCREWS, &c.

(Application filed Sept. 28, 1897.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

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Fig. 2.

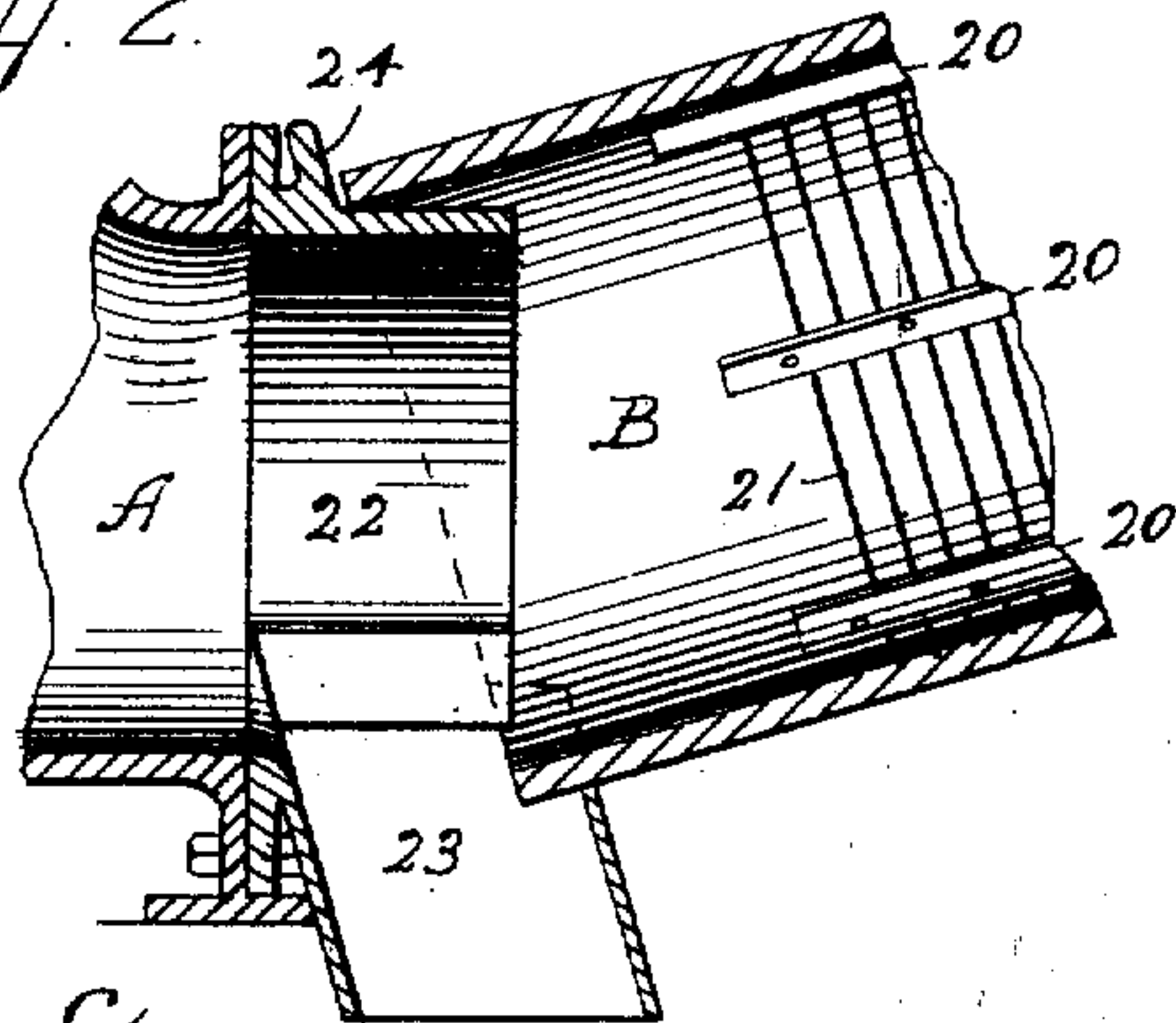


Fig. 3.

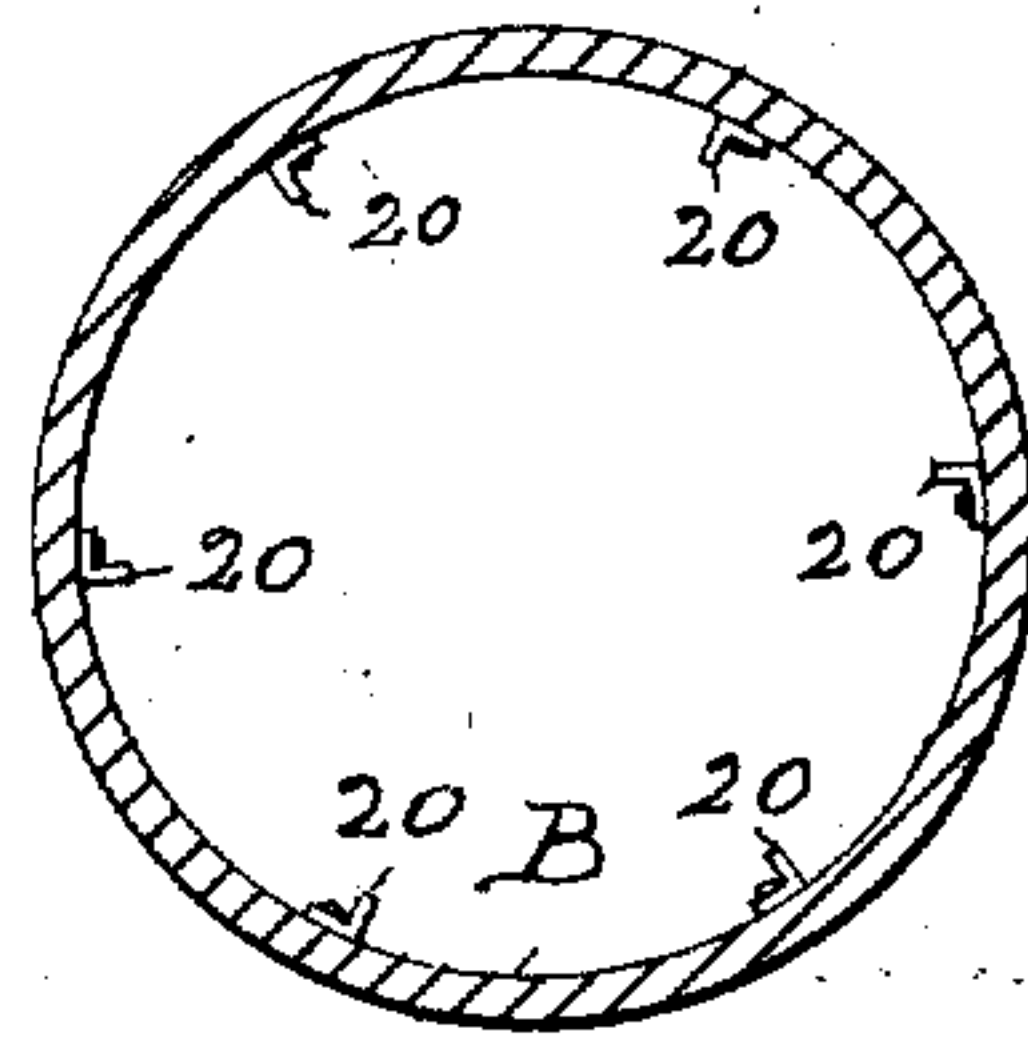


Fig. 4.

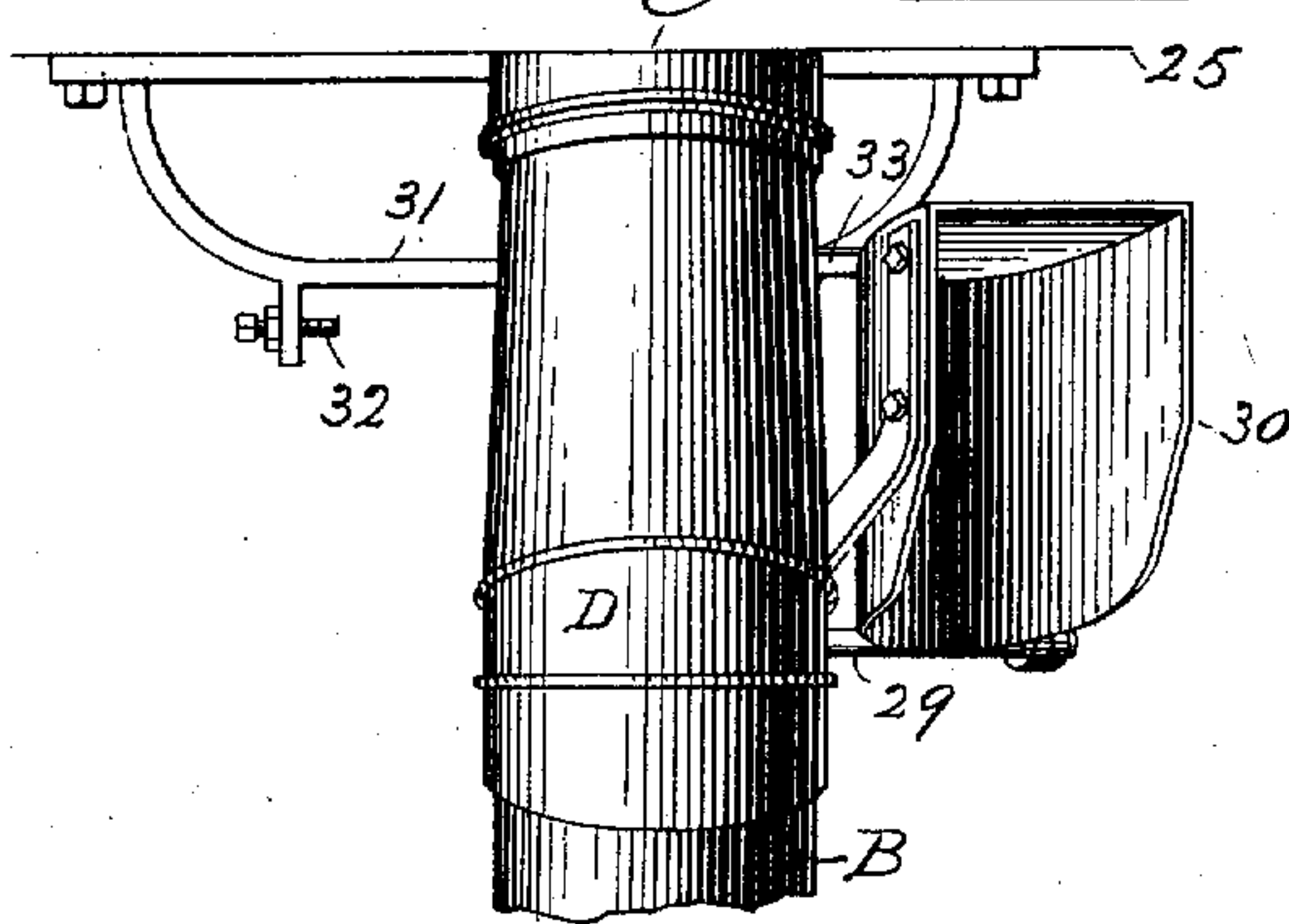


Fig. 5.

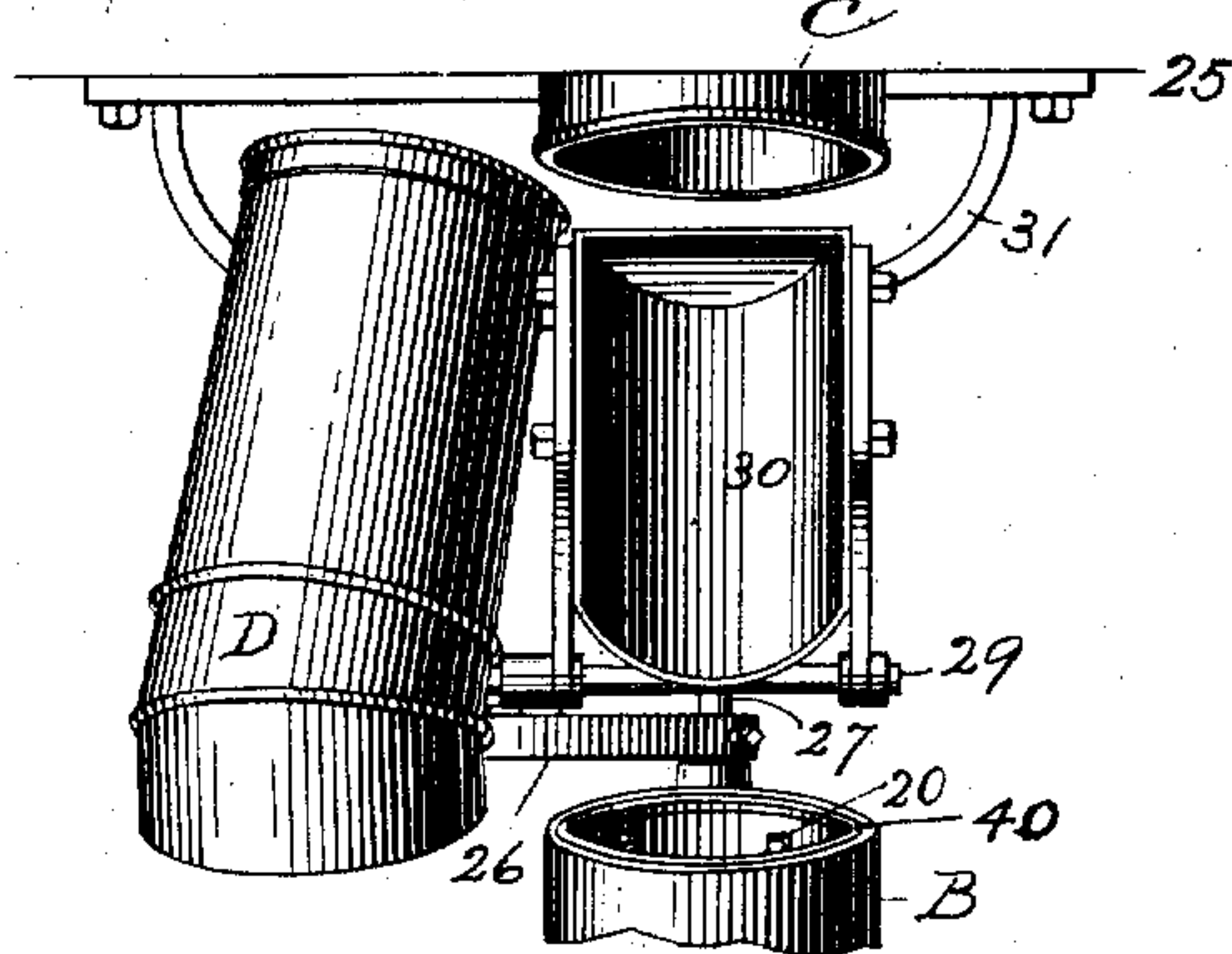


Fig. 6.

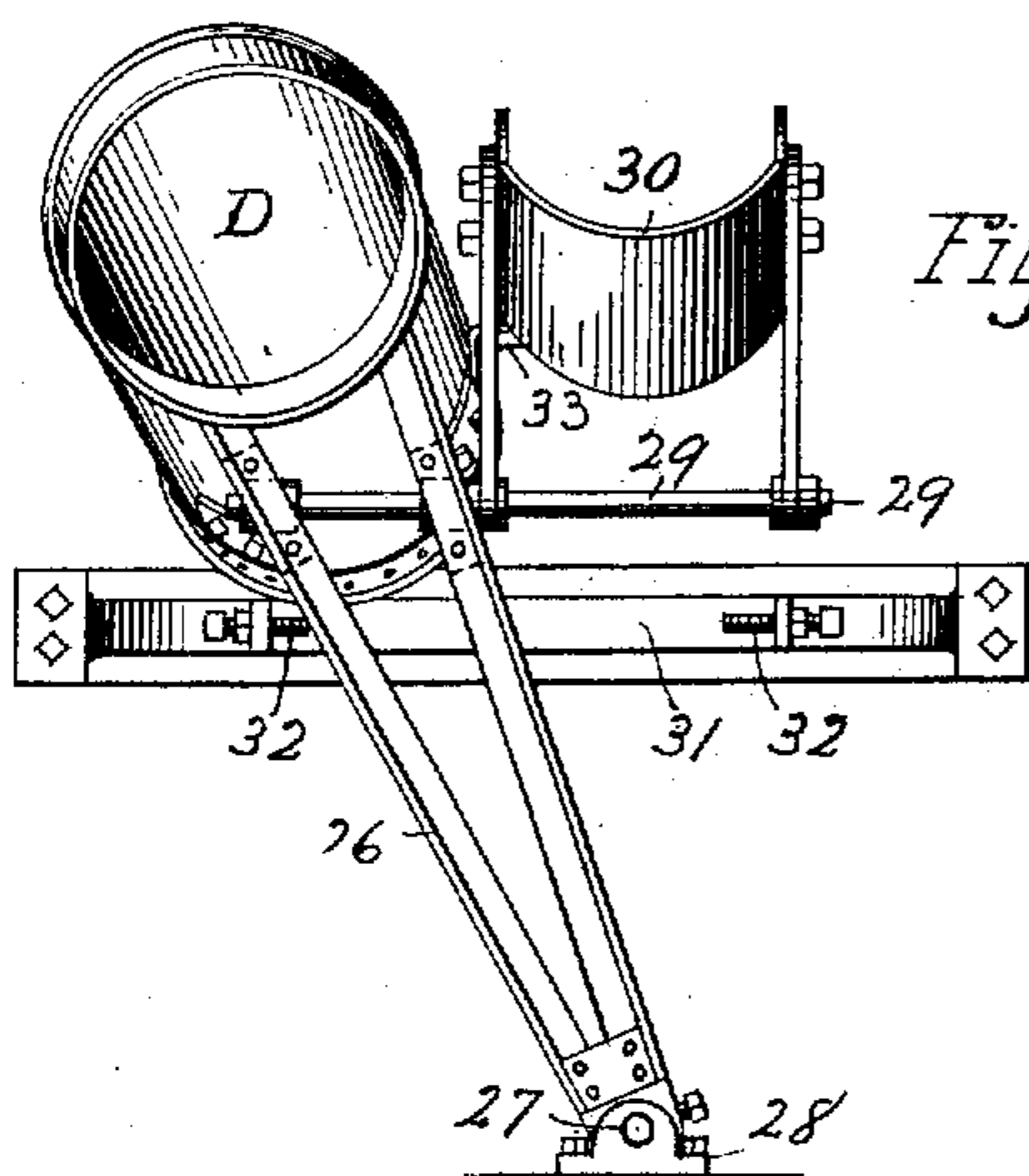


Fig. 7.

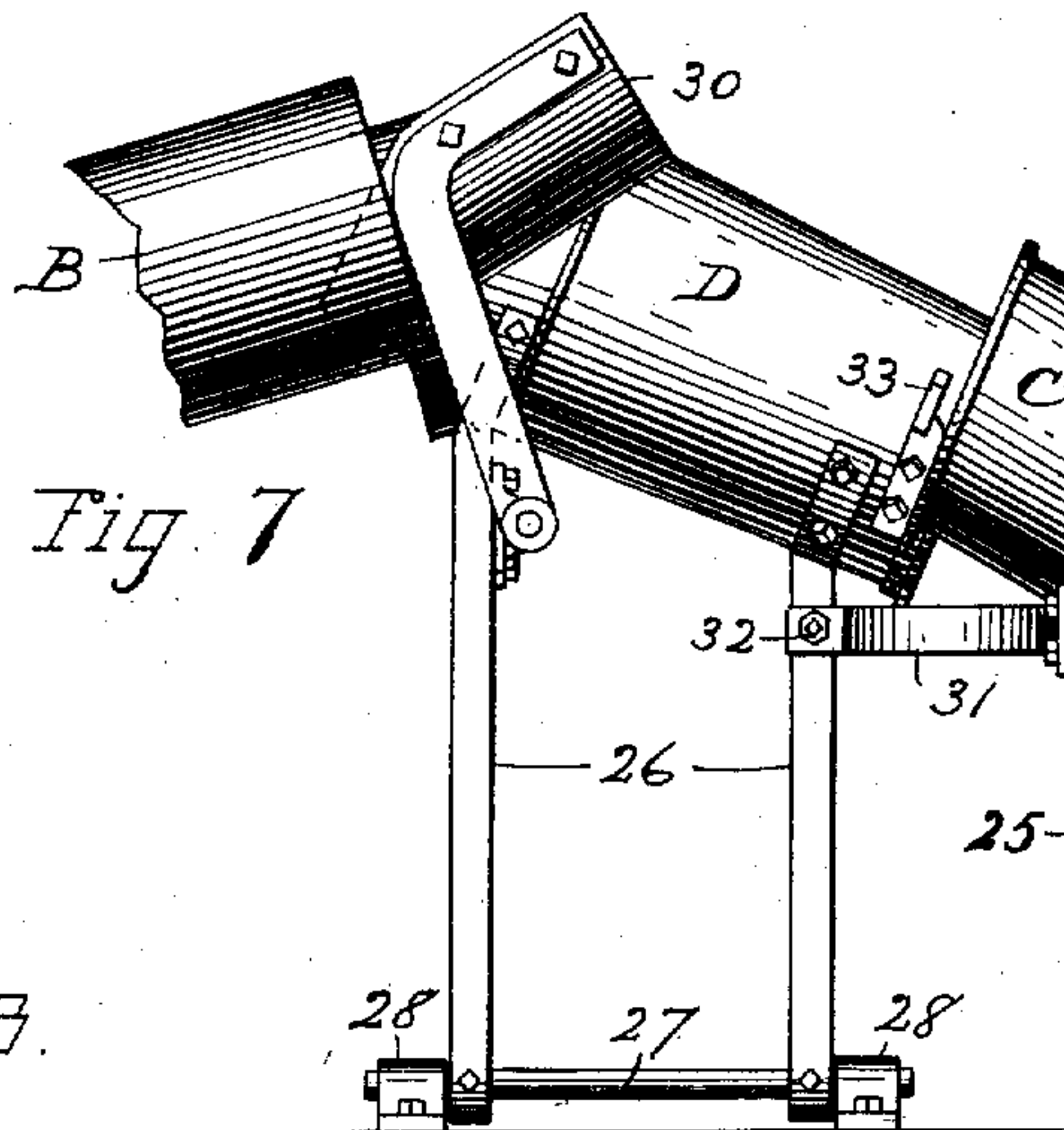
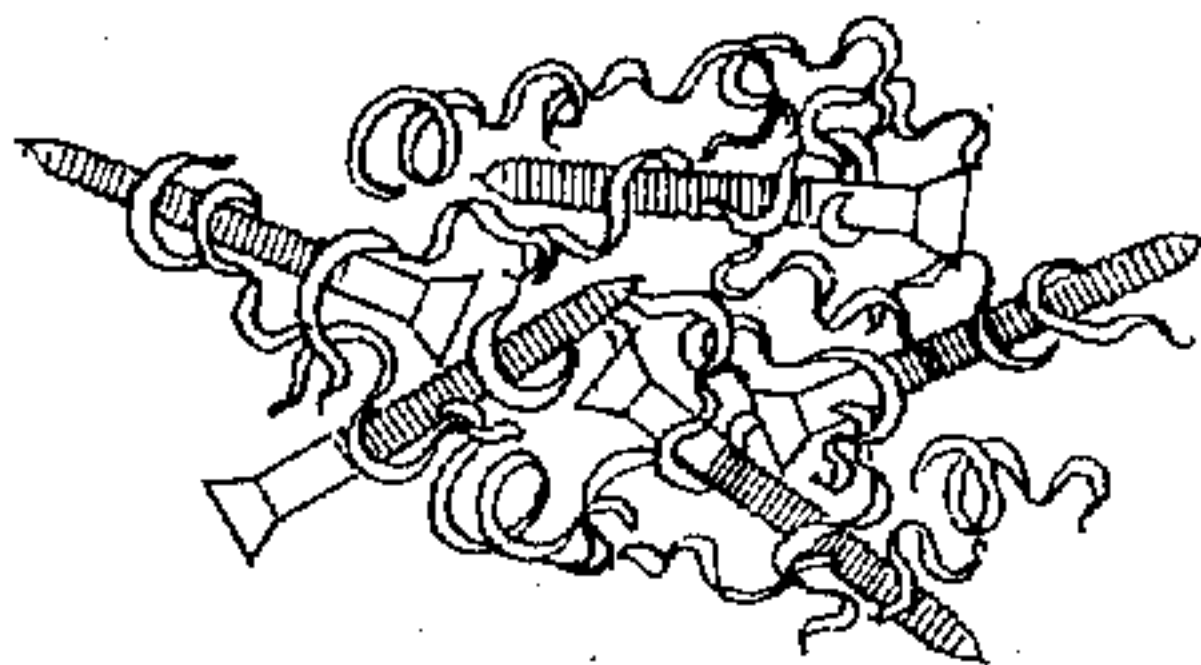


Fig. 8.



Witnesses

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UNITED STATES PATENT OFFICE.

HORACE K. JONES, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE
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MACHINE FOR SEPARATING CHIPS OR SHAVINGS FROM SCREWS, &c.

SPECIFICATION forming part of Letters Patent No. 628,665, dated July 11, 1899.

Application filed September 28, 1897. Serial No. 653,285. (No model.)

To all whom it may concern:

Be it known that I, HORACE K. JONES, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Machines for Separating Chips or Shavings from Screws or other Articles, of which the following is a specification.

My invention relates to improvements in machines for separating chips, shavings, saw-dust, or other matter from screws, rivets, nails, or other articles; and the main objects of my improvement are simplicity and economy in construction and convenience and efficiency in operation.

In the accompanying drawings, Figure 1 is a side elevation of my machine. Fig. 2 is an enlarged longitudinal vertical section of a portion of said machine at the junction of the barrel and blower. Fig. 3 is a transverse section of the barrel. Fig. 4 is a plan view of a portion of said machine with the conductor connection in alinement with the barrel and chip-conductor. Fig. 5 is a like view of the same with the loader in alinement with the barrel. Fig. 6 is an end view of the conductor connection and loader, the barrel being removed and the chip-conductor being omitted. Fig. 7 is a side elevation of the parts shown in Figs. 4 and 5 with the loader tilted for discharging its load into the barrel, and Fig. 8 is a view of some screws and chips or shavings made therefrom.

The chips or shavings made from steel screws are long, curly, and tough, so that it is very difficult (if not impossible) to separate them from the screws by screening or sifting. It is also quite difficult to keep the chips or shavings separate from the screws during the process of manufacture.

In making screws, rivets, nails, and other articles I allow the chips or shavings and screws or other articles to all fall into one receptacle and subsequently separate the chips or shavings from the articles by means of the machine hereinafter described.

A designates an ordinary fan blower having a central air-inlet 9, which I provide with

guard-wires 10 and with the swinging gate 11 for regulating the inflow of air to increase or diminish the air-blast, as may be desired. This gate in the preferred form is operated by means of a sliding bar 12, connected to the upper end of said gate and passing through a bracket 13, and I provide the said bar 12 with stops 14 and 15 and intermediate notches 16 for engaging said bracket, whereby the gate may be set to cover more or less of the central inlet 9, as may be desired.

B designates an inclined barrel mounted to revolve with its periphery in suitable bearings 17 and preferably set at an angle of about fifteen degrees. The barrel is open at both ends and is prevented from working downwardly in its bearings by means of the collar 18, fixed on said barrel in contact with one of the bearings. The barrel is provided with a driving-pulley 19 for the application of a belt from any suitable source. The interior of the barrel is provided with longitudinal ribs 20, and its inner surface may be roughened in any proper manner—as, for example, by circumferential grooves 21, Fig. 2. I also provide the upper end of the barrel with an inwardly-projecting flange 40, Fig. 5. The blower is so set relatively to the barrel as to deliver its air-blast into the lower end of said barrel, provision also being made for discharging the screws or other articles from said lower end. I prefer to provide the blower with an air-blast connection 22, having a discharge opening or chute 23 and flange 24, the angle or incline of the said flange being at a right angle to the axis of the barrel, whereby the end of the barrel may be set closely to said flange. The blower or air-blast connection 22 may, if desired, extend a short distance into the lower end of the barrel, as shown in Fig. 2.

The blower may be driven in any ordinary manner. Its driving-pulley is on the farther side, and consequently not shown in the drawings. A quantity of mixed shavings and screws may be placed in the barrel and the barrel revolved. The longitudinal ribs on the interior of the barrel will carry up a quantity of shavings and screws on one side of the

barrel and then drop them, when they will fall transversely to the barrel and more or less of the shavings or chips will be taken by the air-blast and carried out at the upper end of the barrel, the screws and shavings not at first removed falling down to the lower side of the barrel to a point nearer the lower end thereof. There being no shaft within the barrel the air-blast is not obstructed, and there is nothing to obstruct the transverse movement of the material as it falls from the ribs. The screws or the shavings or chips may be thus lifted and dropped repeatedly until all the shavings or chips are blown out at the upper end of the barrel and the screws all carried down through the lower end of the barrel and out at the discharge-chute 23 into any suitable receptacle that may be placed under said chute. The corrugated inner surface as made by the grooves 21 should extend to or nearly to the upper end of the barrel. Its office is to retard the mixed screws and shavings from sliding down in a body toward or through the lower end of the barrel. This tendency to slide down is greatest when the mixed screws and shavings are first thrown into the barrel. The grooves or corrugations will also to a certain extent prevent the screws from rolling upwardly in the barrel under the influence of the air-blast; but in case some of the screws should roll up to the outer end of the barrel the inwardly-projecting flange 40 forms a sufficient shoulder or obstruction to effectually prevent the screws so rolling up from being carried out with the chips or shavings. The air-blast may be regulated by the swinging gate 11 according to the character of the work to be done. With a proper air-blast the long, curly, and tough shavings or chips produced in making steel screws may be thus readily separated, so as to leave the screws perfectly free from dirt, shavings, or chips.

If only the blower and barrel are employed, the shavings or chips will be thrown out at the upper end of the barrel, where they may fall upon the floor or other receptacle; but I prefer to employ a chip conductor and loader in connection therewith, which I will now describe.

C designates a conductor which is fixed in the wall 25 and extended to any desired place. Its end is some distance from the end of the barrel in order to give room for loading the barrel. A conductor connection D or swinging conductor is mounted on a suitable frame 26 to swing laterally on the shaft 27, said shaft being supported in suitable fixed brackets 28. The conductor connection is preferably in the form of an elbow and is of a length that will substantially fill the space between the upper end of the barrel and end of the conductor C, so that when said connection is in alinement with the barrel and conductor, as shown in Figs. 1 and 4, there is a continuous conductor for the chips leading from the upper end of the barrel out through the wall 25.

The frame 26 is also provided with a transverse shaft 29, upon which I mount the tilting loader 30. A bracket 31 on the wall 25 is provided with stops 32 to limit the lateral swinging movement of the frame 26, and upon the side of the conductor connection D is a stop 33 to limit the tilting movement of the loader in one direction. The loader 30 and its shaft 29 are so mounted on the frame 26 that when the conductor connection D is moved away from in front of the barrel, as shown in Figs. 5 and 6, the loader stands in alinement with the barrel and with its shaft substantially horizontal. When in this position, the loader may be tilted, as shown in Fig. 7, to discharge its contents into the upper end of the barrel. The loader is then moved back out from the mouth of the barrel until it strikes the stop 33. The swinging frame 26 is then moved into the position shown in Figs. 1 and 4 to bring the conductor connection into alinement with the barrel and conductor and the barrel started to separate the screws and shavings, as before described, only the chips or shavings now pass into the conductor connection and out through the conductor instead of falling on the floor. When the parts are in the position shown in Figs. 1 and 4 and the barrel is being revolved to clean the screws, the operator may recharge the loader, so that he may be ready to swing it into position and discharge its contents into the barrel as soon as the screws before placed in the barrel are cleaned.

It is apparent that in carrying out my invention some changes from the construction herein shown and described may be made, and I would therefore have it understood that I do not limit myself to the exact form shown, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

I claim as my invention—

1. In a machine for separating metal chips or shavings from screws or other metal articles, the combination of a revolving barrel mounted in an inclined position adapted to be loaded at its upper end and to discharge the refuse at its upper end and the work at its lower end with means within the said barrel for repeatedly lifting and dropping the material as it works down toward the lower end, and means for sending an air-blast through the said barrel upon the material that is being so lifted and dropped, substantially as described.

2. The combination of a revolving tubular barrel mounted in an inclined position, with an inwardly-projecting flange at the upper end of said barrel and means for sending an air-blast through said barrel and out at its upper end, substantially as described.

3. The combination of a revolving tubular barrel mounted in an inclined position, with take-up ribs on its inner face for lifting and throwing the work and the roughened or corrugated surface to retard the sliding of the

work toward the lower end of the barrel, substantially as described.

4. The combination of an inclined revolving barrel, with means for sending an air-blast
5 through said barrel from its lower end, the fixed conductor and a swinging conductor connection for connecting and disconnecting the upper end of said barrel and fixed conductor, substantially as described.

10 5. The combination of an inclined revolving barrel, with means for sending an air-blast through said barrel from its lower end, the fixed conductor, the swinging conductor connection and the tilting loader mounted to

swing with the conductor connection for 15 bringing the conductor connection or the loader into alinement with the barrel as may be desired substantially as described.

6. The combination of an inclined revolving barrel designed to be loaded from its up- 20 per end, with the tilting loader and means for swinging said loader into and out of alinement with the said upper end of the barrel, substantially as described.

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Witnesses:

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