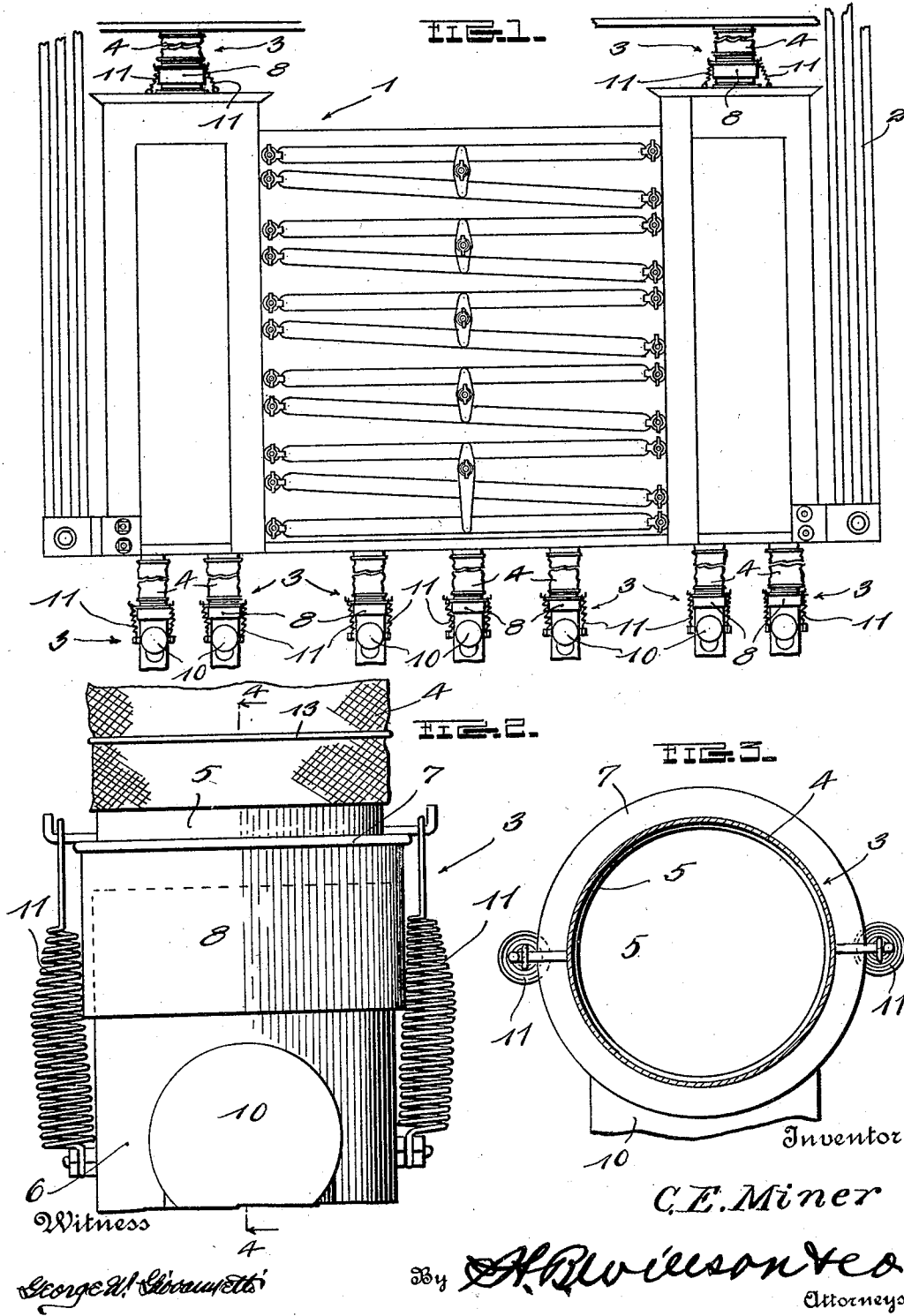


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APPLICATION FILED JUNE 1, 1920.

1,407,211.

Patented Feb. 21, 1922.

2 SHEETS—SHEET 1.

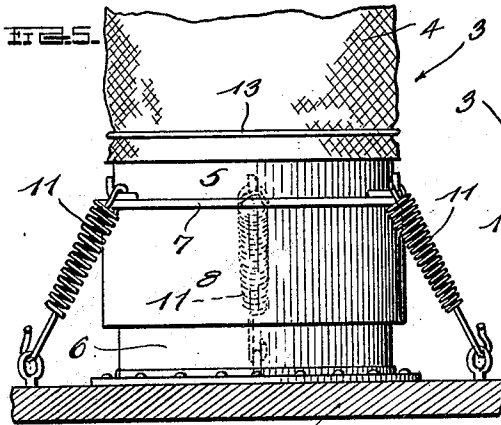
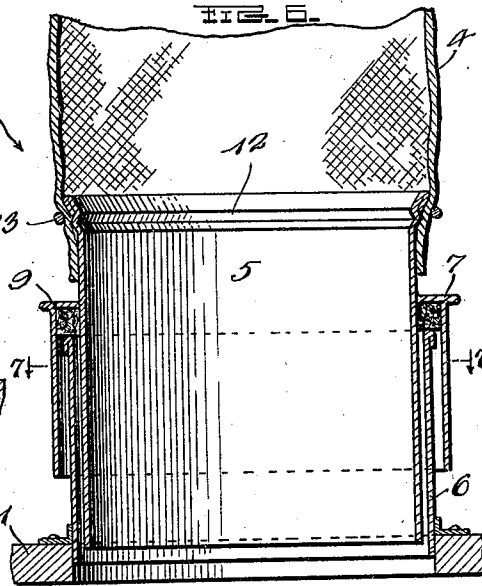
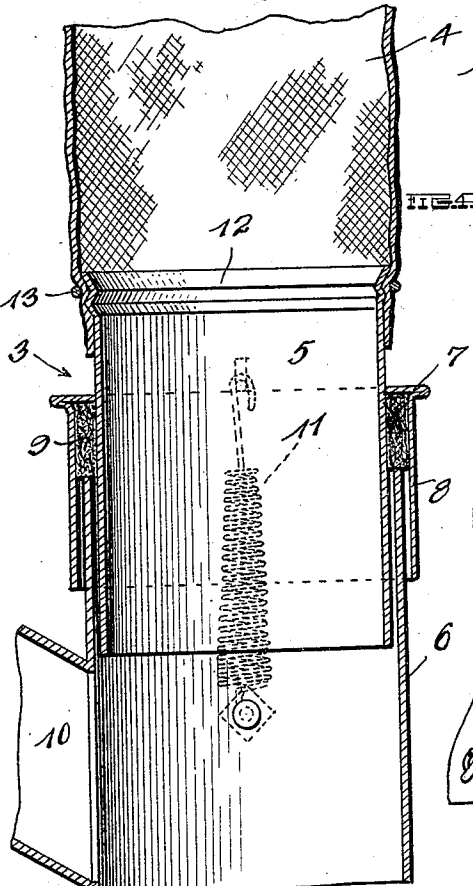
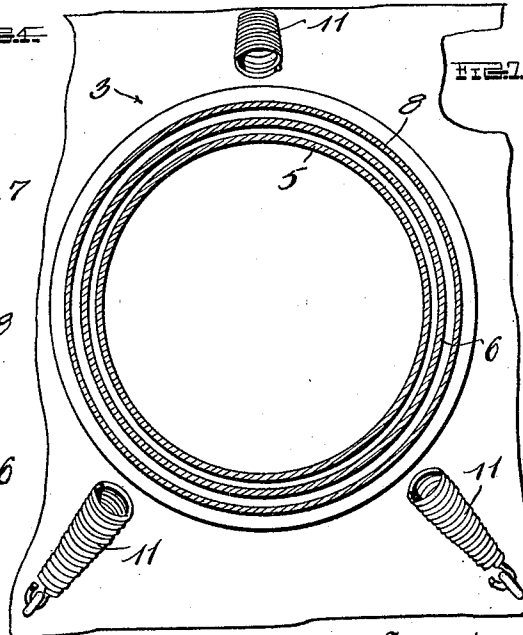


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Witness

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# UNITED STATES PATENT OFFICE.

CLARENCE ELMER MINER, OF CONCORDIA, KANSAS, ASSIGNOR OF ONE-HALF TO  
E. CROOKS, OF CONCORDIA, KANSAS.

## FLEXIBLE CONDUIT FOR BOLTERS.

1,407,211.

Specification of Letters Patent.

Patented Feb. 21, 1922.

Application filed June 1, 1920. Serial No. 385,805.

*To all whom it may concern:*

Be it known that I, CLARENCE E. MINER, a citizen of the United States, residing at Concordia, in the county of Cloud and State of Kansas, have invented certain new and useful Improvements in Flexible Conduits for Bolters; and I do 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.

This invention relates to improvements in conduits for bolters and the like.

It is customary at this time to employ fabric sleeves known as "stockings" for the purpose of conducting flour and other granular material from a suitable source of supply to a horizontally rotating or gyrating sifter box and from the latter to a suitable place of deposit. These stockings are subject to great wear and tear due to the various movements of the sifter box. Consequently, they do not last long and must necessarily be repaired as soon as they are damaged. To do this it is necessary to stop the machine whenever one of the stockings becomes damaged. This is, of course, very objectionable in view of the fact that it wastes much time and is an expensive procedure because more power is required in starting the machine than is required after the machine is running regular. Tearing of these stockings is not an infrequent occurrence, and I have oftentimes had from six to eight stockings destroyed before getting the bolter working properly.

It is my intention and the object of this invention to overcome the above mentioned circumstances by providing a new kind of a conduit. I do not intend to do away with the stockings, but it is my idea to use relatively short stockings, thus decreasing the amount of material required, and connect these stockings to a longitudinally extensible member, which type of conduit will take care of all the various movements of the bolter and will not damage the stockings. This conduit also includes springs which resist extension of said member and at the same time hold the stocking taut so as to prevent it from twisting and obstructing the passage of the material therethrough, as it ordinarily does.

Another object of the invention is to provide a conduit of the above mentioned type

in which the extensible member is free from friction; one in which packing is employed, which prevents all possibility of leakage of the material from the conduit; and one which is strong, durable, highly effective in use and yet inexpensive to both the manufacturer and the user.

Other objects and advantages of the invention will be apparent during the course of the following description:

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is an elevational view of a conventional type of sifter box equipped with conduits constructed in accordance with my invention.

Fig. 2 is an enlarged elevational view of the type of conduit which is connected to the discharge opening of the bolter.

Fig. 3 is a top plan view thereof, the stocking being shown in section.

Fig. 4 is a central longitudinal vertical section taken on the line 4—4 of Fig. 2.

Fig. 5 is an elevational view of the type of conduit connected to the feed opening of the sifter box.

Fig. 6 is a central vertical longitudinal section thereof.

Fig. 7 is a horizontal sectional view taken on the line 7—7 of Fig. 6, looking in the direction of the arrows.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 1 designates a bolter or sifter box of conventional design which is suspended by means of hangers 2 which serve as the means for actuating the same. The type of bolter shown is provided at its top with feed openings by means of which the granular material is supplied to the box from a suitable source of supply. The discharge openings thereof are at the bottom of the box.

In carrying out my invention I employ a relatively short fabric stocking which is connected at one of its ends to a longitudinally extensible tubular member, the opposite end of the latter and the opposite end of the stocking being adapted to be connected over the inlet or discharge openings of the sifter box.

Referring to the drawings it will be seen that the numeral 3 designates, as a whole, a

conduit constructed in accordance with my invention. As before stated, this conduit is made up of a relatively short fabric stocking 4 which is connected at one of its ends to a longitudinally extensible member, the latter being made up of tubular members 5 and 6, the former fitting into the latter in the manner shown. In addition to this the member 5 is provided with a laterally extending flange 7 which in turn carries a depending collar 8 spaced away from the member 6. Disposed between the collar 8 and member 5 and bearing against the flange 7 is a suitable packing ring 9, against which one end of the member 6 abuts. If desired the last named member may be provided with a hand-hole 10 by means of which access may be had to the interior of the conduit for cleaning the same if found necessary. It has been before intimated that I make use of two different types of conduits, that is, I employ one type for connection to the feed opening, and another type for connection to the outlet opening. The constructional differences between these two forms is extremely slight and resides only in the manner of size and the manner of arrangement of the coil springs 11. In the form shown in Fig. 2, one end of the coil springs is connected to the section 5 while the other end is connected to the section 6 of the extensible member. It may be well to state at this point, that the function of these springs 11 is to resist extension of the members 5 and 6, and also to hold the stocking 4 taut. In the form of the invention shown in Fig. 5, one of the ends of the coil springs 11 is connected to the member 5 while the other end is connected to the top of the bolter 1. The stocking 4 may be connected to the member 5 in any suitable way, such as for instance by providing the latter with an internal bead 12 which forms a channel into which the stocking is seated and held against displacement by means of a piece of wire or cord 13.

It is well known that when the bolter is started, its movements are extreme and irregular and it is at this time that the stockings are subject to the greatest strains. On the other hand, after the machine has been running for a while, its movements are regular and there is less liability of injury to the stockings. With the type of conduit that I employ, it will be seen that when the machine is first started, the horizontal movements thereof will be compensated by the stocking 4, and the vertical movements caused by the upward pull of the machine, will be compensated by the longitudinally extensible member composed of the telescopic tubes 5 and 6. As soon as the machine begins to run more smoothly the springs 11 which were under tension will resume their normal state and in so doing

will cause the stocking 4 to become taut. This is a feature to be emphasized because of the fact that the flour may easily pass through the stockings and will not be obstructed. Ordinarily, these stockings are of such a length that they become twisted and wrinkled, especially when the machine is running at its normal speed, consequently, the size of the discharge through which the flour must pass is decreased, and oftentimes it is closed. With my construction these circumstances are overcome in the manner above set forth.

I am aware of the fact that various types of conduits have been patented to overcome circumstances which my device is intended to overcome, but I do not know of any device wherein fabric stockings and a metallic extensible member is employed to form a conduit. I believe this construction to be new and novel. It may be well mentioned here that my conduits have been actually used for some little time, and have proven to be entirely successful. In fact, by their use, unexpected results have been obtained and from my device the necessity in replacing stockings is reduced to a minimum.

In addition to the foregoing advantages, it is to be noted that my device will be found extremely advantageous in view of the fact that all possibility of leakage of the material through the conduit is overcome by employment of suitable packing material. This feature will be found extremely advantageous in view of the fact that it prevents the material from dropping on the floor and top of the bolter, thus rendering the machine entirely sanitary. My device may be manufactured at an extremely low cost and may also be sold at a low price, and it is so simple in construction that it may be easily and readily installed by inexperienced persons. By close examination the construction of the extensible member will be seen that the slidable sections thereof are spaced from each other so as to prevent friction.

Careful consideration of the foregoing description taken in conjunction with the accompanying drawings will enable persons skilled in the art to which this invention appertains to obtain a clear understanding of the same; therefore, further description is deemed unnecessary.

It is to be understood that the form of the invention herein shown and described is to be taken as a preferred form of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. A conduit for bolters comprising a relatively short fabric stocking, an extensible tubular member, to one end of which the stocking is connected, the opposite end of

said stocking being designed to be connected with an inlet or discharge opening in the sifter box, and yieldable means connected with the sections of said extensible member  
5 to resist longitudinal extension of the latter, said yieldable means serving also to render the aforesaid stocking taut.

2. A conduit for bolters comprising a relatively short fabric stocking, a tubular member, to one end of which the stocking is detachably connected, a second tubular member  
10 telescopically engaged with said first member, a laterally disposed flange carried by the latter, a depending collar connected with said  
15 flange and surrounding and spaced from said

second named tubular member, packing arranged between said collar and first named member and bearing against said flange, the upper end of said second named tubular member engaging said packing, and coiled  
20 springs associated with said members for resisting longitudinal separation thereof, said springs serving also to hold the second named tubular member in tight engagement  
25 with said packing and serving to hold said stocking taut.

In testimony whereof I have hereunto set my hand.

CLARENCE ELMER MINER.