

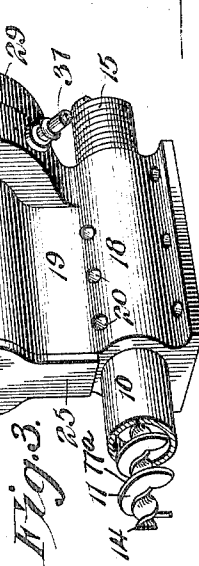
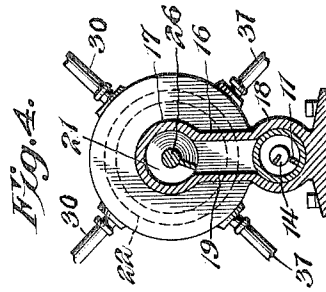
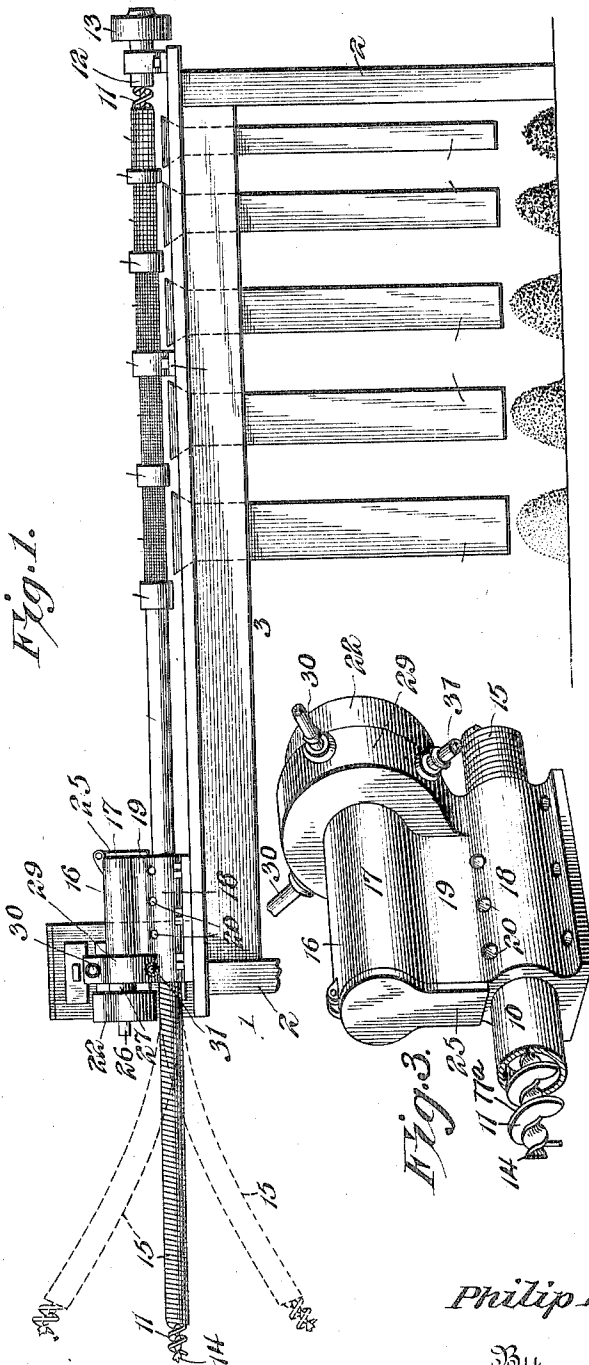
No. 820,829.

PATENTED MAY 15, 1906.

P. H. STAUCH.
AUTOMATIC DIGGER AND CONVEYER.

APPLICATION FILED APR. 9, 1903.

2 SHEETS—SHEET 1.



Philip H. Stauch, Inventor,

By

E. G. Siggers

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Witnesses

Howard W. Orr
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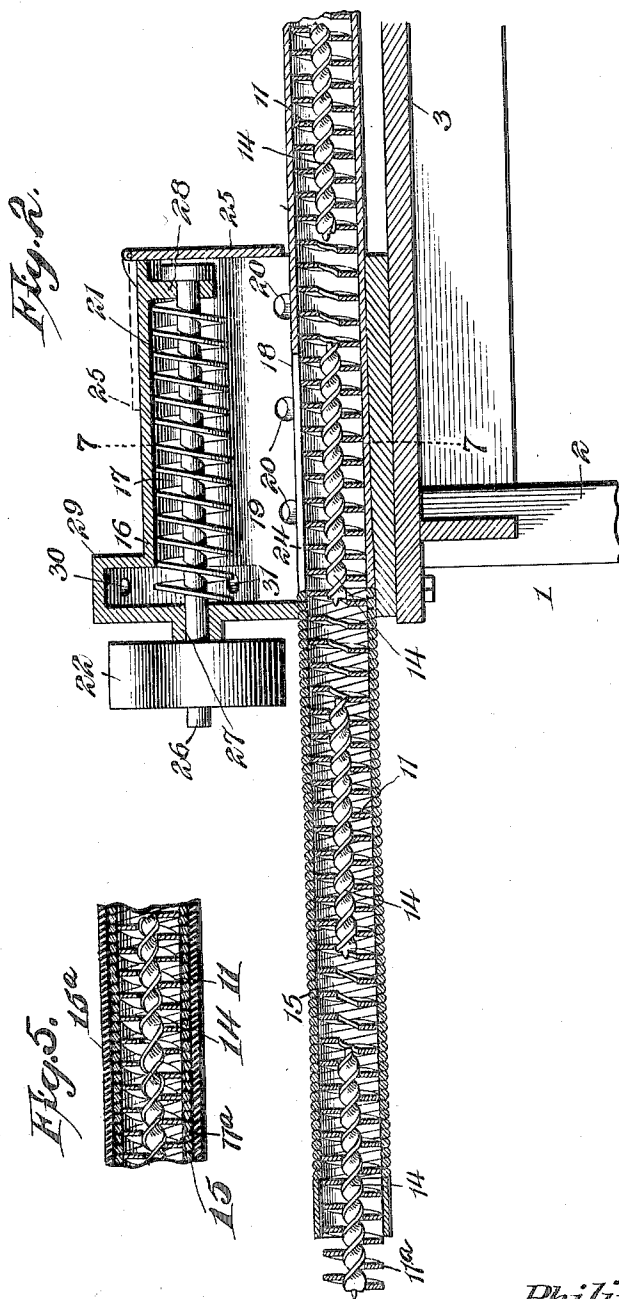
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UNITED STATES PATENT OFFICE.

PHILIP HENRY STAUCH, OF CHICAGO, ILLINOIS.

AUTOMATIC DIGGER AND CONVEYER.

No. 820,829.

Specification of Letters Patent.

Patented May 15, 1906.

Application filed April 9, 1903. Serial No. 151,864.

To all whom it may concern:

Be it known that I, PHILIP HENRY STAUCH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Automatic Digger and Conveyer, of which the following is a specification.

The invention relates to a combined digger and conveyer.

10 The object of the present invention is to provide a simple, inexpensive, and efficient apparatus designed particularly for use in gold-fields for digging into sand and the like and adapted to convey such material from
15 the place or point where it is dug to a convenient point for separating the particles of different sizes.

With these and other objects in view the invention consists in the construction and
20 novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction
25 within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

30 In the drawings, Figure 1 is a side elevation of a combined digger and conveyer constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail perspective view of
35 the casing of the combined fan and conveyer. Fig. 4 is a transverse sectional view on the line 7 7 of Fig. 2. Fig. 5 is a detail sectional view of a portion of the conveyer, illustrating the arrangement of the outer covering of water-
40 terproof material.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a supporting-frame designed
45 to be constructed of wood or any other suitable material and consisting of uprights or standards 2 and a connecting top portion 3; but any other form of frame may be employed for supporting the conveyer, and the
50 said frame may also be provided with any suitable means for enabling it to be drawn from one place to another. As the combined digger and conveyer is exceedingly light, it may be conveniently carried from one
55 point to another, as will be readily understood.

11 designates a flexible conveyer consisting of a spirally-coiled piece of resilient material which is flat in cross-section, as clearly illustrated in Figs. 1 and 2 of the drawings. The
60 spirally-coiled spring, constituting the conveyer, is preferably provided with sharp peripheral cutting edges 11^a, and it is connected at one end with a sleeve or hub extension 12
65 of a pulley 13, which may be driven by any suitable means. The front end of the flexible conveyer may be supported by any suitable form of bearing, if desired, and auger-
70 sections 14 may be secured within the central opening formed by spirally coiling the flat spring of the flexible conveyer, and these
75 short lengths of auger-sections 14 do not interfere with the flexibility of the conveyer, which is adapted to operate on a mass of material. The auger-sections 14 form a spirally-
80 twisted core or central portion for the spirally-coiled conveyer-strip, and they assist in conveying the material.

The apparatus is especially designed for
85 operating on sandy soil in gold districts; but it may be advantageously employed for handling grain, coal, or any other suitable material in bulk, and the end of the conveyer may be inserted into a mass of material at
90 any point, and it will positively convey the material inward through it. The outer movable portion of the flexible conveyer is arranged within a tubular shell or casing 15,
95 of flexible material, adapted to oscillate with the flexible conveyer, as illustrated in dotted lines in Fig. 1 of the drawings, to enable the conveyer to operate on different portions of
100 the mass of material, and the outer portion of the flexible conveyer and its inclosing shell may be of any desired length to permit the
105 desired amount of movement, so that the apparatus may operate over a predetermined area without changing the position of the supporting-frame. The auger-sections are
110 spirally twisted, and they close the central opening or space formed by coiling the resilient strip or ribbon to form the conveyer; but any other suitable means may be provided for effecting this result, or the center of the conveyer may be left open. The outer section of the auger and the outer end of the conveyer may project beyond the flexible shell or casing, as clearly shown in Fig. 1, to enable them to operate more effectively on the material.

The flexible tubular shell 15 is constructed of a spirally-coiled wire or strip of resilient

material, and it may also be provided with a coating or outer covering 15^a, of rubber or other suitable waterproof material, to enable the apparatus to be employed for conveying water from a stream or other source of supply. The inner end of the flexible inclosing tubular shell of the conveyer extends into a combined fan and conveyer casing 16, composed of upper and lower tubular portions 17 and 18 and a connecting hollow portion or neck 19, forming a passage and provided at the bottom with air-inlet openings 20, located directly above the lower tubular portion. A fan 21 operates in the upper tubular portion of the casing and is rotated by a pulley 22, which is designed to be connected with a suitable motive power. The fan consists of a spirally-coiled spring mounted on a shaft 26, journaled in suitable bearings 27 and 28 of the upper portion of the fan-casing. The shaft 26, which forms a central core for the spirally-coiled spring of the fan 21, extends beyond the outer end of the casing 16 to receive the said pulley 22. The bearing 27 is formed in the outer end wall of the casing 16, and the other bearing 28 consists of a perforated lug or flange depending from the top of the casing 16, near the inner end thereof. The inner end of the casing 16 is provided with a hinged door 25, adapted to be swung upward to afford access to the interior. The rotation of the fan creates a suction and carries the fine dust into an enlarged annular portion 29 of the upper portion of the casing and through upper and lower openings 30 and 31, and it thereby serves as both a fan and a conveyer.

It will be seen that the combined digger and conveyer, which is designed for digging material from the earth or from a pile or mass, is adapted to convey the material a distance from the point where the same is taken up and that it is capable of being readily handled and of being quickly moved through a mass of material. It may be constructed of any desired diameter to adapt it for the character of work to be performed and the kind of material to be handled.

What I claim is—

1. An apparatus of the class described provided with a conveyer having a covering, the conveyer being extended beyond the covering to enable it to dig into the material to be conveyed, and both the conveyer and the covering being flexible to permit the extended end of the former to be moved about the material from one point to another.

2. A conveyer, comprising a rotary spirally-coiled strip of flat resilient material, and a covering for the same, said covering being flexible to permit the conveyer to be moved about the material operated on.

3. In an apparatus of the class described, the combination of a flexible shell or casing,

and means carried by the shell or casing for conveying material through the same, substantially as described.

4. An apparatus of the class described provided with a flexible conveyer, and having an auger movable with the conveyer, substantially as described.

5. In an apparatus of the class described, the combination of a flexible conveyer consisting of spirally-coiled resilient material, an auger carried by the conveyer, and means for rotating the conveyer, substantially as described.

6. In an apparatus of the class described, the combination of a flexible tubular shell or casing fixed at one end, a flexible conveyer extending through the shell or casing and movable with the same, and means for rotating the conveyer, substantially as described.

7. In an apparatus of the class described, the combination of a flexible tubular shell or casing fixed at one end, a flexible conveyer extending through the shell or casing, an auger carried by the conveyer and located at the outer end thereof, and means for rotating the conveyer, substantially as described.

8. In an apparatus of the class described, the combination of a flexible tubular shell or casing fixed at one point, a flexible conveyer consisting of a spirally-coiled piece of resilient material, auger-sections secured to the conveyer, and means for rotating the latter, substantially as described.

9. In an apparatus of the class described, the combination of a flexible tubular shell fixed at one point and composed of spirally-coiled material, a flexible conveyer extending through the shell or casing and movable with the same, and means for rotating the conveyer, substantially as described.

10. The combination of a tubular conveyer-casing having a flexible outer portion and provided at the inner portion with an outlet for the material, and a flexible spiral conveyer operating within the conveyer-casing, substantially as described.

11. The combination of a casing having approximately parallel tubular portions, and an intermediate connecting-passage, a neck extending throughout the length of the said tubular portions, spirally-coiled strips located within the tubular portions of the casings, and means for rotating the spirally-coiled strips, substantially as described.

12. A conveyer, comprising a spirally-coiled strip having a central longitudinal opening, and a spiral core located within the central opening, substantially as described.

13. A conveyer, comprising a spirally-coiled strip having a central longitudinal opening, and a spiral core located within the central opening and composed of short sections, substantially as described.

14. A conveyer, comprising a spirally-coiled strip having a central opening, and a spiral core arranged within the opening and extending beyond the spiral strip, substantially as described.

15. A conveyer, comprising a tubular casing having a flexible outer portion, a spirally-coiled conveyer-strip located within the tubular casing and having a central longitudinal opening, and a spiral core arranged within the opening and composed of sections and extended beyond the front end of the strip, substantially as described.

16. A conveyer, comprising a tubular casing having a flexible outer portion, a spirally-coiled conveyer-strip located within the tubular casing and having a central longitudinal opening, and a spiral core arranged within the opening and composed of sections, said

strip and core being extended beyond the casing, substantially as described.

17. A conveyer, comprising a tubular casing, a spirally-coiled strip having a central opening, and a spiral core located within the central opening, said strip and core being extended beyond the casing.

18. A conveyer, comprising a tubular casing, a spirally-coiled strip having a central opening, and a spiral core located within the central opening and extending beyond the tubular casing.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

PHILIP HENRY STAUCH.

Witnesses:

HENRY ENGELHARDT,

CHARLES W. ENGELHARDT.