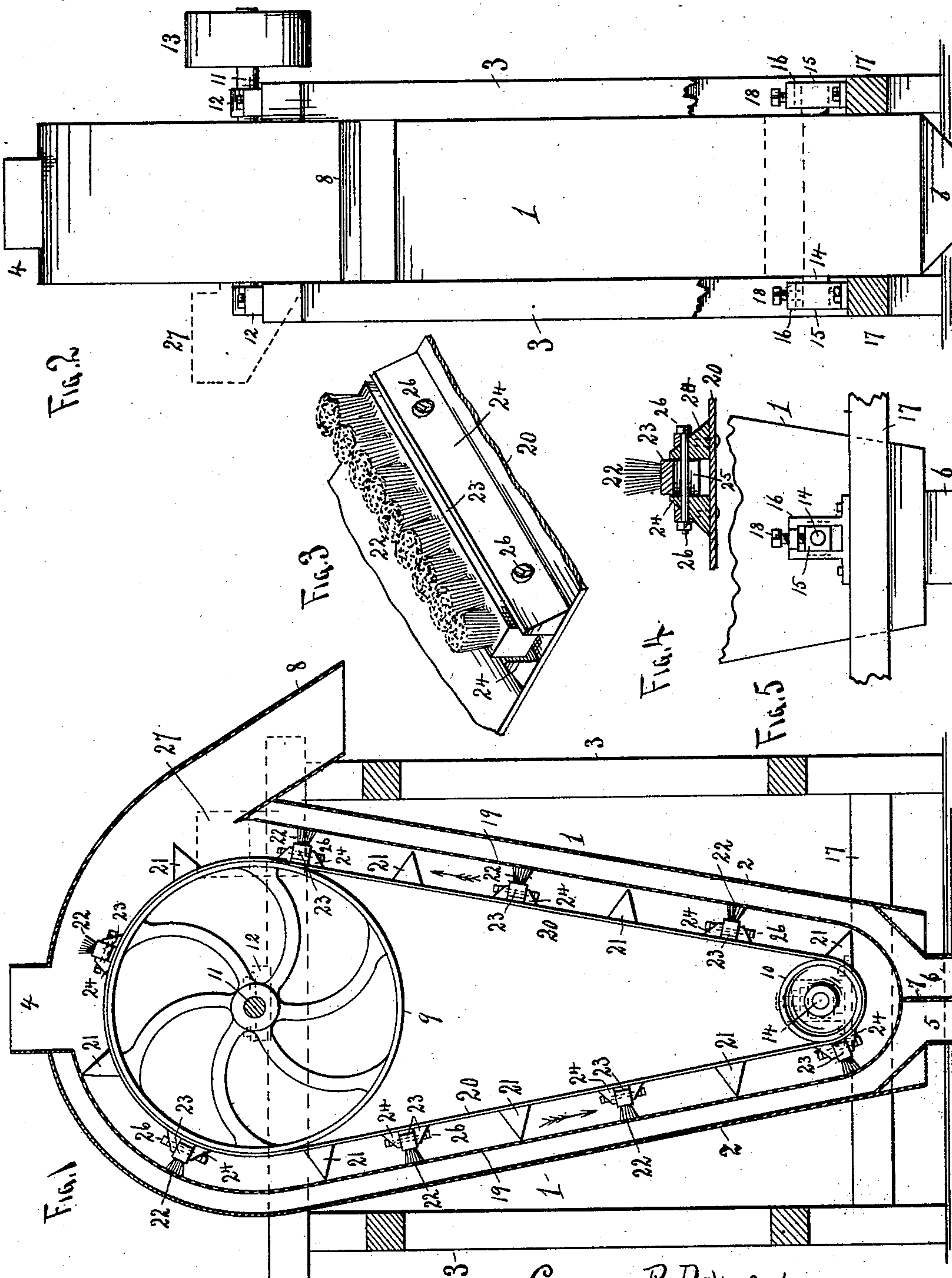


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Patented Oct. 21, 1902.

G. R. DAVIDSON.
SCALPER AND BOLTER.
(Application filed Mar. 19, 1901.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE R. DAVIDSON, OF LENOX, MICHIGAN.

SCALPER AND BOLTER.

SPECIFICATION forming part of Letters Patent No. 711,830, dated October 21, 1902.

Application filed March 19, 1901. Serial No. 51,928. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. DAVIDSON, a citizen of the United States, residing at Lenox, in the county of Macomb and State of Michigan, have invented a new and useful Scalper and Bolter, of which the following is a specification.

My invention is an improved scalper and bolter; and it consists in the peculiar construction and combination of devices herein-after fully set forth and claimed.

In the accompanying drawings, Figure 1 is a vertical sectional view of a scalper and bolter constructed in accordance with my invention. Fig. 2 is an exterior elevation of the same, partly in section, at right angles to Fig. 1. Fig. 3 is a detail perspective view of a portion of the endless traveling belt, showing one of the brushes thereon. Fig. 4 is a transverse sectional view of the same. Fig. 5 is a detail elevation of the lower portion of the casing.

The casing 1, which is preferably of the form shown and having the downward-converging sides 2, is supported in a suitable frame 3. At the upper end of the casing is an inlet 4. At the lower end thereof are outlets 5 6, which are divided by a vertical plate or board 7. On one side of the casing, near the upper end thereof, is an outlet 8. A pair of pulleys 9 10 are respectively located within the casing near the upper and lower ends thereof. The shaft 11 of pulley 9, which is journaled in bearings 12 on the frame 3, is provided at one end with a power-pulley 13. The shaft 14 of pulley 10 is journaled in bearing-blocks 15, which are vertically adjustable in frames 16, that are bolted on the cross-bars 17, which form part of the frame 3. Set-screws 18 are provided to vertically adjust the bearing-blocks 15, and hence adjust the shaft 14.

Within the casing at a suitable distance from the inclined sides thereof is a screen 19, which extends from the inlet-opening 4 to the outlet 8. The upper and lower portions of said screen are curved concentrically with the pulleys 9 10, as shown, and the side portions thereof are inclined and converge downwardly. Both inclined sides of the screen may have meshes of the same size, or one side of the screen may be finer than the other.

An endless traveling belt or apron 20 connects the pulleys 9 10. On the outer side of said belt 20, at suitable distance apart, are secured transversely-disposed flight-blocks 21, each of which is triangular in cross-section, as shown, and which operate on the inner side of the screen 19. Intermediate of each pair of flight-blocks is a brush 22, which also operates on the inner side of the screen. The head 23 of each brush is secured between a pair of transversely-disposed blocks 24, that are secured on the outer side of the belt 20. The head of each brush is provided with adjusting-slots 25, through which extend adjusting-bolts 26, that are secured in the pair of blocks 24. Hence each brush may be adjusted toward or from the screen, as may be required. As each brush becomes worn it is moved toward the screen to compensate for the wear of the bristles.

The flight-blocks, as will be understood, carry the material, the inclined upper sides of the flight-blocks causing the material to be fed outwardly to the screen, and said flight-blocks prevent the material from lying in masses on the brushes, the material which descends from between the flight-blocks and the screen falling upon the brushes in moderate quantities.

The operation of my invention is as follows: Assuming that the belt 20 is traveling in the direction indicated by the arrows in Fig. 1, the material which is fed to the machine through the inlet 4 is subjected to the action of the screen and the brushes and blocks which operate against it. The material which passes outwardly through the screen opposite the downwardly-traveling lead of the belt is discharged through the outlet 5. The material which passes outwardly through the screen opposite the upwardly-traveling lead of the belt is discharged through the outlet 6. Such material as fails to pass through the screen is discharged through the outlet 8. The belt 20 may be run in either direction. When the same is to be run in the reverse direction to that indicated by the arrows in Fig. 1, the material is fed to the machine through a supplemental inlet 27, which is indicated in dotted lines in Figs. 1 and 2.

By disposing the leads of the belt so that

they converge downwardly and by disposing the sides of the screen parallel with the respective leads of the belt the said inclined sides of the screen also converge downwardly, 5 and thereby the inclined leads of the belt overhang the inclined sides of the screen, which disposition of the leads of the belt prevents the material from adhering to the leads of the belt and facilitates its outward pas- 10 sage over the flight-blocks to the inclined sides of the screen, thereby counteracting any tendency of the material to adhere to the belt and flight-blocks and choking between them and the screen.

15 Having thus described my invention, I claim—

1. The combination of a casing having a screen therein with downwardly-converging inclined side portions, an endless belt having 20 leads parallel with said converging sides of the screen and overhanging the same, revolvable supporting elements for said endless belt, alternately-disposed flight-blocks and brushes on said belt, and spaced apart, said 25 flight-blocks, brushes and screen coacting, a discharge at the upper end of one of the inclined portions of the screen and means at the upper end of the casing to feed material between said belt and screen, substantially 30 as described.

2. The combination of a casing having an inlet-opening at its upper end, a discharge-opening on one side, near the upper end thereof, and a discharge-opening at its lower end, 35 a screen in said casing and extending from said inlet-opening downwardly above the lower discharge-opening and thence upwardly to said upper discharge-opening, an endless traveling element parallel with said screen 40 and brushes and flight-blocks on said endless

traveling element, the latter and the screen confining material between them, the brushes acting on the screen to force material there- through and the flight-blocks operating to 45 carry the material ahead of the brushes, to feed the same in moderate quantities thereto and to prevent the material from lying in masses on the brushes, substantially as de- scribed.

3. The combination of a casing having a 50 screen therein with upwardly-extending side portions, an endless traveling belt having leads parallel with the side portions of the screen, means, carried by the belt, acting upon the screen to force material therethrough, a 55 discharge for the bolted material from each side of the screen, a discharge at the upper end of one of the side portions of the screen, for the tailings, and means at the upper end of the casing to feed material between the belt, 60 and the screen, substantially as described.

4. In combination with an upright screen, an endless belt having one lead opposite the screen and alternately-disposed brushes and 65 flight-blocks spaced apart and carried by the belt, the brushes acting upon the screen and the flight-blocks traveling ahead of the brushes to carry the material ahead of the brushes and feed the same to the screen, whereby the material is prevented from lying 70 in masses on the brushes, substantially as described.

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

GEORGE R. DAVIDSON.

Witnesses:

ARTHUR HENRY HUNVICK,
CLARENCE JOHNS.