trimming dies, and the yielding gauge *g*, substantially as described and for the purpose specified. 6th. In a machine of the class hereinbefore specified, the combination of the punching die and punch for the middle hole, the blanking die and punch, a carrier, a trimming die and punch, and a clearer *m* for removing the scrap from said trimming die, substantially as described and for the purpose specified.

No. 32,416. Compound for the Manufacture of Sanitary and Drain Pipes.

(*Composition pour la fabrication des tuyaux sanitaires et d'égouts.*)

Bertel E. Olsen and Charles Gabriel, Victoria, B. C., 2nd October, 1889; 5 years.

Claim.—The herein described composition of matter, consisting of sand, sulphur and pitch, with the addition of either lime, clay, or cement, in substantially the proportions stated.

No. 32,417. Art or Process of Converting Metallic Lead into a Salt Suitable for White Paint.

(*Art ou procéde de conversion du plomb métallique en un sel propre à faire la peinture blanche.*)

John Blair, Ardtrea, Ont., and Henry Baylis, Montréal, Qué., 2nd October, 1889; 5 years.

Claim.—1st. The improvement in the process of corroding metallic lead into a salt suitable for white paint, which consists in placing lead plates and carbon plates in battery form in a suitable vessel and then charging such vessel with an exciting lequid, substantially as described and set forth. 2nd. The improvement in the process of rapidly corroding metallic lead into a salt suitable for white paint, which consists in placing carbon plates and metallic lead plates connected in battery form in a suitable vessel, and charging said vessel with an exciting liquid in the presence of heat, substantially as specified. 3rd. The improvement in the process of rapidly corroding metallic lead into a salt suitable for white paint, which consists in placing carbon plates, and metallic lead plates connected in battery form in a suitable vessel, charging said vessel with an exciting liquid as a solution of soda nitrate, sulphuric acid and water, or other substances producing like results, and applying heat to the exterior surface of said vessel, substantially as described and set forth. 4th. The improvement in the process of corroding metallic lead into a salt suitable for white paint, substantially as described and set forth, whereby a sulpho-hydrate of lead is produced in every respect equal to the best hydrated carbonate of lead of commerce. 5th. The herein described rapid and cheap method of producing this sulpho-hydrate of lead, by the application of heat to the vessel in which the process of corroding the metallic lead is being carried on, substantially as described and set forth. 6th. The herein described means of assisting the heating process, and of greatly improving the salt of lead, produced by the introduction of carbon plates into the vessel in which the process of corroding the metallic lead in being carried on, substantially as described and set forth.

No. 32,418. Locomotive Smoke Stack.

(*Cheminée de locomotive.*)

Perry J. Brown, Albuquerque, N.M.T., U. S., 2nd October, 1889; 5 years,

Claim.—1st. The combination of the stack, the cone arranged above the upper end thereof, the inverted dish-shaped screen 3, the circular screen 4 with flat top inclosing the dish-shaped screen 3, the funnel 5 inclosing the circular screen 4, the clearance pipe 8 inclosing the circular screen 4, allowing an uninterrupted flue 7 between said circular screen 4, the funnel 5 and the clearance pipe 8, substantially as described. 2nd The combination of the inclosed funnel-shaped pipe 8, having the funnel 5 at its upper end, the vertical stack 1 extending upward through the clearance pipe 8, the deflecting cone above the top of the stack, the screens 3 and 4 arranged one within the other and inclosed in the funnel 5, and the clearance pipe 8 forming an annular flue or space 7 between the outer screen, the funnel 5 and the clearance pipe 8, and communicating with the said clearance pipe 8, the deflecting cone above the top of the stack, the screens 3 and 4 arranged one within the other and inclosed in the funnel 5, and the clearance pipe 8 forming an annular flue or space 7 between the outer screen, the funnel 5 and the clearance pipe 8 and communicating with the said clearance pipe 8, substantially as described. 3rd. The combination of the stack, the cone arranged above the same, the screen 3 arranged over the cone, the screen 4 arranged over the said screen 3, the funnel enveloping the said screen 4 and having the depending clearance pipe, an annular flue or space being left between the opposing sides of the screen 4 and the funnel, substantially as described. 4th. The combination of the stack, the cone arranged above the same, the screen 3 arranged over the cone, the screen 4 arranged over the said screen 3, the funnel enveloping the said screen 4 and having the depending clearance pipe, an annular flue or space being left between the opposing sides of the screen 4 and the funnel and the sleeve 4^2, substantially as described. 5th. The spray pipe 9, passing through the upper side of the clearance pipe 8 downward into the cinder discharge pipe 20, and regulated by the valve 10 operated by the engineer, substantially as described. 6th. The cinder discharge pipe 20, extending downward from the clearance pipe 8, and having the spray pipe 9, substantially as described.

No. 32,419. Watch Case. (*Boîte de montre.*)

Gaspard Schelker, Brooklyn, N.Y., U.S., 2nd October, 1889; 5 years.

Claim.—1st. In a watch case, the combination, with one of the outer covers or lids, provided with a circular offset I, of a bezel H^1, H^2 sprung upon said offset, and a revoluble apertured disk F resting over the outer face of said cover under the bezel, substantially as set forth. 2nd. In a watch case, the combination, with one of the outer lids or covers having a circular offset I, and a concentrically arranged series of picture receiving recesses, of the bezel H^1, H^2 sprung upon said offset, and the revoluble disk F resting over the recessed face of the lid or cover under the bezel, and having an aperture and a pin or projection J, substantially as set forth.

No. 32,420. Mariner's Clock or Watch Dial.

(*Cadran d'horloge ou de montre marine.*)

Silas H. Harding, Jr., Rockingham, N.H., U.S., 2nd October, 1889; 5 years.

Claim.—1st. As a new article of manufacture, a clock dial extended beyond the numerals, and divided into spaces imprinted with symbols indicating mariner's danger signals, substantially as described. 2nd. A clock dial, of the class described, having the representation of flags imprinted on its face, and arranged in groups indicating mariner's danger signals, substantially as described. 3rd. A clock dial, having a portion of its face divided into spaces, in which are imprinted flags grouped to indicate mariner's danger signals, and words in explanation thereof, substantially as described. 4th. In *x* clock dial, the central dial A and outer portion B divided by lines a, the flags *m* in said spaces, and words explaining the signals indicated thereby, substantially as described.

No. 32,421. Joint for Furniture, Boxes or like Articles.

(*Joint pour les meubles, les boîtes ou objets semblables.*)

Henry L. Beach, Montrose, Penn., U.S., 2nd October, 1889; 5 years.

Claim—1st. An improved joint for furniture, boxes, or similar articles, consisting of the meeting sections *a* and *b*, the former being provided with triangular-shaped grooves, terminating at points back of the front edge of said section, thereby forming a shoulder, and the latter section having tongues of triangular shape adapted to be fitted in said grooves, so as to form a blind joint at the front only, substantially as herein described. 2nd. The sections *a* and *b*, formed with triangular-shaped grooves and tongues, whose inner surfaces are cut in straight lines from their bases to their outer points, the said sections *a* also having a shoulder formed at the front corners, as herein described.

No. 32,422. Traction Engine.

(*Machine de traction.*)

George T. Glover, Chicago, Ill., U.S., 2nd October, 1889; 5 years.

Claim.—1st. The combination, substantially as hereinbefore set forth, with the engine-truck, of a traction propelling attachment hinged to the rear end portion of the engine-truck, and comprising one or more traction wheels mounted lower than the point of connection between the traction propelling attachment and the engine-truck, whereby the weight of the engine-truck may be automatically taken by the traction wheels to an extent proportional to the traction required. 2nd. The combination, substantially as hereinbefore set forth, with the engine-truck, of the traction propelling attachment comprising a pair of inclined arms, hinged at their forward higher ends to the rear end portion of the engine-truck, and one or more traction wheels connected with said arms, and having their axle arranged lower than the connection between said arms and the engine-truck, for the purpose described. 3rd. The combination, substantially as hereinbefore set forth, with the engine-truck, and a traction propelling attachment arranged in rear thereof, of a draw-bar having a sliding connection with the engine-truck, and a hinged connection with the traction propelling attachment. 4th. The combination, substantially as hereinbefore set forth, with the engine-truck, and a traction propelling attachment, of a draw-bar connected with the traction propelling attachment, and having a sliding connection with the engine-truck, and a spring presenting a yielding resistance to the forward end movement of the draw-bar. 5th. The combination, substantially as hereinbefore set forth, with the engine-truck, and a traction propelling attachment arranged in rear of the engine-truck, and driven from the engine by a flexible power transmitting connections such as set forth, of a pair of draw-bars having sliding connection with the engine-truck and hinged connections with the traction propelling attachment. 6th. The combination, substantially as hereinbefore set forth, with the engine-truck, and a traction propelling attachment in rear thereof, of a draw-bar connected to the traction propelling attachment and having a sliding connection with the engine-truck, a spring opposing the forward end movement of the draw-bar, and a jack for adjusting the force of the spring. 7th. The combination, with the engine-truck carrying a suitable engine and boiler, of a traction propelling attachment attached to the engine-truck and operated from the engine thereon, and a water supply tank mounted upon the traction propelling attachment and serving to weight down the traction wheels. 8th. The combination, with a suitable boiler and engine carried by the engine-truck, in a traction-engine for forming ice roads and running over the same, of the water supply tank, a steam-chamber arranged below the tank, and means for introducing steam into said chamber from the boiler, substantially as described. 9th. The combination, with a suitable boiler and engine carried by the engine-truck, of the water supply tank, a steam chamber arranged below said tank, means for introducing steam into said chamber, and the pipe leading from the tank through said chamber, and connected with the boiler by suitable pipe-connection. 10th. The combination, with the boiler and engine carried by the engine-truck, and a traction propelling attachment attached to the engine-truck, and comprising traction wheels driven from the engine, of a feed-water heater carried by the traction propelling attachment. 11th. The combination, with the engine-truck and engine, of the traction propelling attachment B, the feed water tank N supported upon the traction propelling attachment, the steam chamber *n* under the said tank, and a pipe connection between the tank and the engine