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CONTENTS.

INVENTIONS PATENTED,	131
INDEX OF INVENTIONS,	137
INDEX OF PATENTEES,	138
ILLUSTRATIONS,	139

INVENTIONS PATENTED.

No. 4065. THOMAS M. CHAPMAN, Oldtown, Me., U. S., 18th November, 1874, for 5 years: "Saw-Sharpening Machine." (Machine à affûter les scies.)

Claim.—1st In combination with the stationary jaw *c*, the vertically swinging jaw *f*, attached to the arm *e*, and clamped to the jaw *c*, by the set screw *g*, on the end of said jaw substantially as described. 2nd. The feeding devices *s*, the friction rollers *i*, *i*, *i*, feeding rollers *h*, *h*, with their shaft and gears *l*, *n*, and shaft *m*, level gear and shaft *p*, connecting them with the treadle *o*, whereby motion is transmitted to said rollers: 3rd. The combination of the feeding devices *s*, with the swivelling standard *b*, as set forth.

No. 4066 HENRY E. CHAMPION, Detroit, Mich., U. S., 18th November, 1874, for 5 years: "Improvements on Steam Boiler Furnaces." (Perfectionnements aux fourneaux des chaudières à vapeur.)

Claim.—1st. The combination with a boiler furnace having a finely perforated grate and a tight ash-pit, of a continuous air blast and an intermittent steam blast entering the closed ash pit: 2nd. The combination with a boiler furnace having a perforated grate and tight ash pit, of a continuous air blast and an intermittent steam blast entering the ash pit, and a second air blast entering the combustion chamber behind the bridge wall: 3rd. The arrangement of the air blast pipes *e*, *e*, and exhaust steam pipe *F*, with relation to the bridge wall *C*, and grate *D*, of a boiler furnace having a closed ash-pit: 4th. The arrangement of the air blast pipes *e*, *e*, and exhaust steam pipes *F*, *F*, with relation to the bridge wall *C*, and grate *D*, of a boiler furnace having a closed ash-pit: 5th. The intermittent blasts under the grates, in a tight ash-pit, for the purpose of raising and breaking up the agglomerated particles of coal, in the grates, as described.

No. 4067. THOMAS BRANIGAN, Beloit, Wis., U. S., 18th November, 1874, for 5 years: "Boot-Tree." (Embauchoir.)

Claim.—1st. The sliding front *B*, rod *a*, collar *O*, bearings *g*, nut *o*, pitman *h*, and hook *e*: 2nd. The combination of the sliding front *B*, foot parts *C*, and *D*: 3rd. The rod *E*, stretching devices *G*, nuts *a*, arms *x*, *c*, follower *f*, collar *u*, rack *v*, and spring bearing *t*: 4th. The reversible instep shaping piece *Q*: 5th. The parts *A*, *F*, and *S* in combination with the parts *B*, *C*, *D*, and *Q*, rods *E*, and *a*, frame *G*, nuts *a*, arms *x*, *c*, follower *f*, collar *u*, rack *v*, and spring bearing *t*, as specified.

No. 4068. ARTHUR W. COVELL, South Elmsley, Ont., 18th November, 1874, for 5 years: "Saw-Sharpener." (Affûteur de scie.)

Claim.—1st. A saw-filing device composed of the slotted frame

A, stay bar *P*, sleeve *E*, shaft *F*, and arms *G*, *G*, arranged and combined as specified, and provided with the set screws, as described for clamping the frame to the saw and holding the file in the manner set forth: 2nd. A saw-swing composed of the stem *J*, having a slotted head *K*, bevelled end punch block *M*, and sleeve *N*, arranged and combined as specified.

No. 4069. JAMES STEEL and JOHN McINNES, Glasgow, Scot., 18th November, 1874, for 5 years: "Air Brake and Train Signal." (Frein et signal de convoi atmosphériques.)

Claim.—1st. The arrangement and combination of mechanism constituting the air-brake and signalling apparatus, consisting of the air cylinder *A*, piston *H*, piston rod *J*, links or flexible coupling *R*, air cylinder cover *C*, air vessel *B*, T-piece coupling *L*, and signalling whistle *e*, operating as described: 2nd. The construction of the air cylinder *A*, and air vessel *B*, in one piece as described: 3rd. Placing the air cylinders *A*, at the ends of railway carriages, vans, or other vehicles, and having the air vessel *B*, below the seat *V*, of railway carriages: 4th. The arrangement and construction of coupling *l*, for effecting the connection between railway carriages or other vehicles, to which air brake apparatus is applied: 5th. The air reservoir *C*, on the tender for containing the compressed air and consisting of one or more tubes placed round the tender: 6th. The construction of the air cylinder cover *C*, with a stuffing box both inside and outside the inner stuffing box *G*, also forming a support for the piston *H*, when the brakes are not applied.

No. 4070. CHARLES F. MURDOCK, Detroit, Mich., U. S., 18th November, 1874, for 5 years: "Stop Valves." (Soupapes d'arrêt.)

Claim.—1st. A stop valve with a sliding valve plate or plates having an opening for the admission of said plate or plates in one side of the lateral chamber or extension into which they slide in opening the valve: 2nd. A stop valve body *A*, having a lateral chamber or extension *d*, provided with an opening in one side to admit the valve plate or plates: 3rd. The body or case *A*, having the lateral chamber or extension *d*, provided with the side opening *J*, and the cap or cover *F*: 4th. The combination in a stop valve having two seats or throats, of two valve plates, an intermediate brace, and an operating screw as described: 5th. In combination with the screw *E*, and plates *B*, *C*, the brace *D*, having the lip *h*: 6th. In combination with the plates *B*, *C*, the brace *D*, having the eccentric head as shown: 7th. In combination with the brace having the eccentric or inclined seat or bearing to receive said head: 8th. In combination with the case or body *A*, having the two seats or throats *e*, the valve plate *B*, provided with the lip *h*, and arms *g*, the brace *D*, provided with the lip *h*, the plate *C*, provided with the annular flange *r*, and the screw *E*, all constructed and arranged to operate as described: 9th. In combination with the body or case having the two seats or throats, the screw *E*, ring or carriage *K*, valve plates *B*, and *C*, and the brace *D*, arranged and operating as described: 10th. The combination of a body having two seats, two valve plates and an intermediate brace having one or both ends made of a spherical form, placed at an inclination between the plates: 11th. A circular valve plate provided with ratchet teeth and a pawl arranged to engage therewith when the valve is moved, whereby the plate has imparted to it a rotary motion to prevent unequal wear as described.

No. 4071. SMITH H. FINCH, New-York, U. S., 19th November, 1874, for 5 years: "Railroad Switch." (Aiguille de railroute.)

Claim.—The combination of the slotted sliding bar *A*, with the bell-crank *I*, rod *O*, reciprocating block *K*, and a suitable operating lever all as described.